

fc622.05
M6

California State Library

Presented by



Date received

No. 29458

EXTRACT

*From an Act prescribing Rules for the Government of the State Library,
passed March 8th, 1861.*

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

SEC. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JAN. 7, 1871.

VOLUME XXII.
Number 1.

A Great Hydraulic Mining Enterprise.

The history of hydraulic mining in California has been one of bold engineering feats. We have to-day to speak of a new enterprise, the boldest of the kind yet attempted, which has lately been successfully brought to completion, and has opened a new field for the hydraulic miner. This is the introduction of water to the Cherokee gravel mines in Butte county.

This region has been worked to some extent for many years, but only during the winter months, with such water as could be obtained from reservoirs in the rainy season. From its elevation, however, there was but little opportunity for collecting water, and hence the locality, although known to be rich, has received but comparatively little attention. We propose to

find in many places that sheet iron pipes are employed, and work under pressures which startle engineers of acknowledged ability.

A case of the kind occurs in San Francisco. The Spring Valley Water Company convey their city supply of water from their reservoirs over a distance of 17 miles in two lines of sheet iron pipes, 30 inches in diameter. These pipes are made with the circular seams single riveted and the longitudinal seams double riveted, and with thicknesses and pressures as follows: No. 14 iron, 60 feet; No. 12, 100 feet; No. 11, 200 feet; and No. 9, 250 feet. This pipe was manufactured at the Risdon Iron and Locomotive Works of this city, under the care of Mr. Abby, Superintendent of the Water Company, of which company Mr. Schussler is Engineer. It was made in

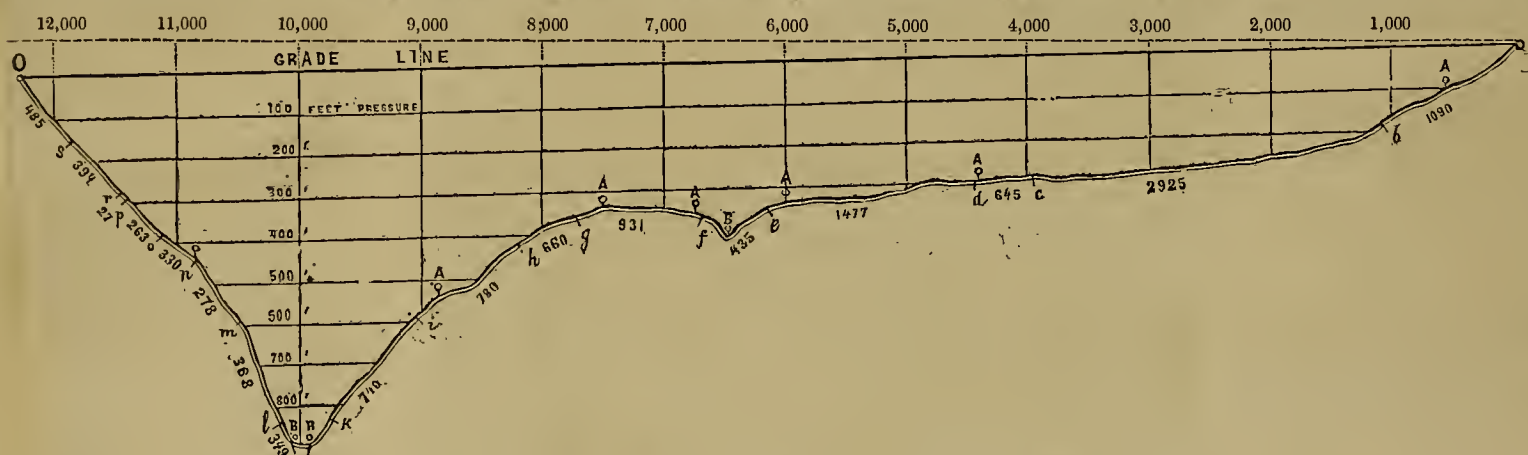
$\frac{1}{4}$ for 600 feet, 5-16 for 850 feet, and $\frac{3}{8}$ for 900 feet. The water is admitted at the upper end from a cistern, with sand box, etc., for settling any sand or gravel brought in from the ditch. The pipe has here an elbow dipping into the water to prevent the entrance of any air. Fifty feet from the inlet there is a stand pipe to allow the escape of any air which may have got into the pipe, and to guard against an over-head of water. At different places, especially where depressions occur, are placed air-valves, made with floats to allow the escape of air, which shut on the approach of water. If the water is drawn off, these open on the inside, preventing the collapsing of the pipe from atmospheric pressure.

The pipe was laid in a trench (five feet deep), from one end to the other, and covered with earth to prevent any undue ex-

a cast iron pipe would render the enterprise impracticable.

Such is a brief outline of one of the greatest undertakings of the kind ever attempted, and one which opens a new and rich mineral region. That a work of such magnitude and boldness should be conceived and carried out, redounds greatly to the honor of our Pacific Coast. It speaks most highly for the talent of the engineers who conceived the plan, the enterprise of the men who undertook to put it in execution, and the ability of the mechanics who made it an accomplished fact.

To the Spring Valley Water Company and its officers is due principally this success; to Judson & Co. high praise should be given for their enterprise in undertaking such untried work; and to the Risdon Iron Works great credit for the able manner in



PROFILE OF HYDRAULIC PIPE LAID IN BUTTE COUNTY, CAL.

give a short description of the manner in which water has been carried into this place, and of the difficulties encountered and overcome.

Before speaking of this particular work, we may be allowed a few remarks upon that branch of engineering which treats of storing and conveying water, a subject which has engaged the attention of our most eminent engineers and called forth the utmost skill of the profession; and more especially the conveying of large quantities of water under great pressure—as in supplying cities where the houses and streets are at various elevations. For this purpose cast iron pipes have been almost invariably employed, the proper proportions of which have been so well ascertained that little or no risk is incurred in their use. Wrought iron pipes have been discarded, one of the most serious objections against this material being its tendency to rust.

But on our coast, where transportation and other items of expense are so costly, the use of cast iron renders many enterprises unprofitable, and other material must be employed, especially in gravel mining, where water has to be conveyed for temporary purposes over great inequalities of ground and in such quantities as to prohibit the use of cast iron. Hence we

lengths of 24 feet and dipped in boiling asphaltum, in which it was allowed to remain until a complete union had taken place. This done properly is a perfect protection against rust. This pipe has been in successful operation for many years. One line of 6,000 feet, after having been in use for 10 years, was lifted and relaid in another place, being found in as good condition as when first put down.

The success of this pipe led to the employment of one of greater magnitude—the one first spoken of—and induced Messrs. Judson, Abby, Davis and Doe to undertake to convey water to the Cherokee mines. Our engraving gives a profile of this pipe, showing the natural difficulties and the nature of the country. A ditch had been constructed from Concow Creek to Yankee Hill, and from this place the water had to be carried across the ravine of the West Branch to the opposite mountain, whence it was conducted in a canal to the mines of Cherokee Flat.

The inlet to the pipe is 150 feet above the outlet, with a vertical height from the lowest point to grade line of nine hundred feet. The pipe is 30 inches in diameter and is intended to carry 1,900 miners' inches of water. The thickness of iron used is No. 14 for 150 feet of pressure, No. 12 for 275 feet, No. 10 for 850 feet, No. 7 for 425 feet,

pansion and contraction in hot and in cold weather. It does not extend quite to the bottom of the ravine, but is carried over on a truss bridge at a height of about 70 feet. It was laid in lengths of 23 feet, which were riveted one to the other continuously, man-holes being placed every 1,000 feet to allow the entrance of the workmen. The rivets used were: for No. 14 iron, $\frac{1}{4}$ wire; No. 12, $\frac{1}{4}$; No. 11, 5-16; No. 9, $\frac{3}{8}$; and No. 7, $\frac{1}{2}$; driven cold. The first ($\frac{1}{4}$) was machine-riveted cold, hand-riveted hot; 5-16, $\frac{3}{8}$; $\frac{1}{2}$ driven hot. A steam riveting-machine was employed for nearly all of the pipe, giving better results than the hand labor.

The pipe was made at the rate of 1,100 feet per day, giving employment to a large number of men. The punching and shearing was done by machinery expressly designed for this pipe, and worked as high as 30 tons of iron daily, 87,000 feet of pipe being manufactured and laid in place, and the water run through, in four months from the commencement of the enterprise.

The thickness of iron required here gives us a datum for computing the comparative cost of cast iron and of wrought iron pipe; $\frac{3}{8}$ wrought iron sustains here a pressure of 385 pounds to the square inch, for which 3-inch cast iron (nearly) would be required to make it safe. The freight alone of such

which they performed their allotted task and carried the attempt to a successful end.

In the engraving the air-valves are denoted by A, and the 2-inch blow-offs by B. The circular seams are single-riveted; the longitudinal seams, double-riveted. I is the inlet and O the outlet. The letters, b, c, d, etc., denote the points of union of the different thicknesses of pipe. From I to b and s to O, No. 14 is used; from b to c and r to s, No. 12; from c to d and p to r, No. 11; from d to e, f to g, and o to p, No. 10; from e to f and n to o, and g to h, 3-16; from h to i and m to n, $\frac{1}{4}$; from i to k and l to m, 5-16; and from k to l, $\frac{3}{8}$. The capacity of the pipe is 1,900 miners' inches, or 50 cu. ft. per second.

PNEUMATIC GAS AT MARE ISLAND.—The Pacific Pneumatic Gas Company has been officially notified by Commodore Goldsborough, Commander at Mare Island, that the Company's gas works at the Navy Yard are accepted, and the contract completed to the satisfaction of the United States authorities.

A TERRIBLE INCIDENT of the war is reported by telegraph. Fifty wagons full of wounded were taken some distance. On arriving at the point of destination, nearly all the poor fellows were found dead—having been frozen.

MECHANICAL PROGRESS.

THE COTTERILL LOCKS.—*The Engineer* gives a description of these new patent locks, which we condense:—"The padlock, being without a rivet hinge, could only be forced with great difficulty. The hoop is in one piece with the bolt, and simply slides up and down to open and shut. The street door lock or latch has two keys; one only need be used during the day; by the aid of the other a cover is thrown over the first keyhole, preventing the insertion of the key, and backing up the tumbler with a strong stop plate to prevent the bolt being forced. This lock is applicable to small safes, office doors, etc. The keys are spindles with cams cut on them. The key being a number of eccentric circles, each differing, working in the centre of the tumblers, the lock is perfectly powder proof. Robberies are often committed by copies or impressions of the keys being taken; this is impossible with the Cotterill lock. The key working in the center of the levers gives a great advantage over all locks, the keys of which work on the edge of the levers, making it very much more difficult to pick or force. The keyhole being so small, any instrument inserted for picking fills it up, so that no second instrument can be inserted which will have the least effect. The safe or street door lock with two keyholes is doubly secure, as it forms two separate and distinct locks; the last or bottom key in locking throws a steel plate over the top keyhole, making it in every way safe from the burglar. Besides, in banks or large jewelry establishments two clerks may be present, each with his own key to open the safe, yet the lock can be made so that the principal may have a master key to open the two. The great advantage of the padlock is that the shackle is not fixed to the lock by a pin, but slides in and out of the lock, requiring a key to open it, yet it will lock itself. The keyhole is covered by a spring drop, which requires the point key to open it, so that no dirt can get into it, and wet is kept out of the body of the lock."

USES OF THE BESSEMER METAL.—"A correspondent of the *Maschinen Constructeur* says that he has seen Bessemer metal used with great advantage for making the piston-rods of steam hammers which were used for hammering steel. Wrought-iron pistons and piston-rods of the same dimensions were used up in a short time, by the change of the iron from a fibrous to a granular structure, in consequence of the repeated concessions to which they were subjected. Bessemer metal has also been used for locomotive axles with excellent results. Its use for this purpose, as well as for boiler plates, is continually increasing in Europe, though we have not heard of its application to either purpose in this country. The fact that it resists the oxidizing effects of a flame much better than wrought iron is a strong argument for its use in boilers. It is only about 13 years since the first introduction of Bessemer metal, and though its adoption for rail making has been contested, step by step, until it proved itself far superior to other iron, it is now almost universally commended for that purpose."—*Eng. and Min. Journal*.

WIRE ROPE BRIDGE.—At the Landore Siemens Steel Works, near Swansea, is an arrangement for carrying the matter from some excavations across a stream where vessels are frequently passing. Two steel wire ropes are stretched across, each bearing a "runner" with grooved wheels, from which is suspended a truck; and the runners are both attached to an endless wire cord which passes round a pulley on each bank, so that the loaded truck, descending by its own gravity to the opposite bank which is the lowest, draws back at the same time the empty one. To allow the passage of a vessel, the ropes are lowered to the bottom of the stream at its middle, by running forward the abutment over which they are strained; and this is afterwards drawn back by a hand winch worked by two men, the final tautening being accomplished by screw couplings to which the hauling chains are hooked.

CARBOLIZED VULCANITE.—*The Scientific American* has seen specimens of rubber goods, all made of the same materials and in the same manner, but a part of which were carbolized and a part not. All had been used in the same manner and for the same length of time. "The uncarbolized rubber and cloth were in a rotten and damaged condition, while the carbolized was apparently as strong and sound as when new."

PEAT FOR GAS.—T. H. Leavitt, of Boston, whose notes upon the use of peat fuel for locomotives and in iron works we have alluded to, writes the *Gas Light Journal* on peat for gas making. We give an extract or two from his letter:—"Prof. Johnson of Yale College says 'a retort of two feet width, one foot depth, and eight or nine feet length, must receive but 100 lbs. of peat at a charge. The quantity of gas yielded in a given time is much greater than from bituminous coal. From retorts of the size just named, 8,000 to 9,000 cubic feet of gas are delivered in 24 hours. The number of retorts requisite to furnish a given volume of gas, is much less than in the manufacture from coal. On the other hand the dimensions of the furnace are considerably greater, because the consumption of fuel must be more rapid, in order to supply the heat which is carried off by the copious formation of gas.' * * Dr. A. A. Hayes of Boston, reports an experiment with 16 lbs. of peat from Wisconsin. The quantity being so small the charge was made up with Picton coal. 134 lbs. Picton coal alone, yielded 536 cubic feet of gas; 5 feet being equal to 17 candles, or the whole to 1778 candles. The same quantity (134 lbs) of Picton coal with the 16 lbs. of peat added, yielded 620 cubic feet of gas; 5 feet of which were equal to 29 4-10th candles. In his report he says 'There are only two or three cannel coals known which afford so much illuminating material, placing this peat in the first class of gas materials. It exceeds all common cannel coals, and of course is far above any bituminous coal, and can be worked with poor coal to make good gas.'"

DISBURDENED SLIDE VALVE.—*The Artisan* has this notice of a device which is the subject of a recent English patent. "In order to relieve the slide-valve from the pressure of the steam or fluid upon its back, so as to lighten the friction against the valve face as far as is consistent with maintaining a sufficient contact, the inventors form the valve with a passage through it and a face at its back, which works steam-tight upon a plate carried by a cylinder passing through the bonnet or steam-chest cover by a suitably packed gland. This cylinder excludes the steam from the back of the valve more or less, according to its area. If the engine be non-condensing, the area of the cylinder will be somewhat less than that covered by the valve. For a condensing engine, the cylinder may be of larger area than the valve, and apparatus will then be provided to prevent the cylinder receding from the back of the valve when there is no proper vacuum in the condenser."

THE LAUNCH OF THE "THOROUGHFARE." the new steamer built for freight purposes by the C. P. R. R., which occurred on the 24th ult., was interesting as being that of the first of its class ever used on our coast. It is 165 feet long, 50 feet wide, has a double track, and can accommodate 14 to 20 freight cars. It was built under the superintendence of Mr. P. H. Tiernay. The engines, with 22-inch cylinders and 7-foot stroke, were built at the works of the railroad company at Sacramento. The steamer is very strongly constructed, and its launch was made the occasion of quite a little jubilee.

THE "PNEUMATIC DISPATCH." In the subterranean room adjacent to the entrance of the Broadway pneumatic tunnel, a small line of tubing has been arranged in connection with a blower to test some improvements recently suggested in the pneumatic system of transmitting mail matter. On a late visit of Secretary Robeson to the tunnel, the apparatus was put in operation, and a large mail of letters and newspapers sent through the tubes at a velocity of sixty-three miles an hour.—*Artisan*.

GRAINING WITH STENCIL PLATES.—We see this noted as the subject of a recent patent. A pattern of the grain of any wood is taken with tracing paper, and transferred to a plate, which is cut accordingly. This is placed upon the graining cloth, freshly laid on, and rubbed over with a cloth which removes the color at the openings. The plate is then removed, and the work finished with the ordinary graining tools.

AEROSTATION.—The Paris correspondent of the *London Engineer* writes that the French Academy of Sciences "has expressed its opinion in a very decided manner against aerostats heavier than the air moved by steam or other power; but it gave some countenance to a proposition by an engineer, M. Sorel, who uses a sail as a rudder, and a screw simply to produce a difference between the velocity of the machine and that of the wind. The balloon is, in fact, retarded by the screw, and thus resistance is obtained."

SCIENTIFIC PROGRESS.

THE "MUDLUMPS" OF THE MISSISSIPPI.—*The American Naturalist* for December has a notice of an abstract of a paper upon this subject, by Professor Hilgard, the State Geologist of Louisiana, read before the American Association. We quote:—"The Mudlumps are islands formed by upheavals of the bottom, off the mouths of the Passes, inside the bar. They often rise in mid-channel, obstructing navigation and diverting the current, and at times bringing up objects long ago lost from vessels. They form a number of pretty large islands, especially near the mouth of the Southwest Pass. On them we frequently find springs of liquid mud, accompanied by bubbles of combustible gas; these springs often exhibit all the phenomena of mud volcanoes—extensive cones of mud, with an active crater in the middle. Most of the material of the Mudlumps seen above water, bears evidence of having once belonged to active cones, now extinct. The conclusion reached is, that the mud is the same as that which is deposited on the 'blue clay bottom' of the Gulf, outside the bar, in a semi-fluid state. In its annual advance, the bar covers this mud stratum, which exists equally higher up the Passes; the increase in weight by vegetation, alluvion, etc., of the new formed land above, as well as that of the bar below the mouth, causes the bottom to bulge upwards at the points of least resistance, i. e., in the deepest channel. Attention was called to the fact, that of all rivers known, the Mississippi is the only one exhibiting either mud-lump action, or the peculiar narrow lands of bank, advancing rapidly toward deep water, which are known as 'necks,' and are obviously dependent on the mudlumps for their origin."

PROTOCHLORIDE OF COPPER.—We take the following from the *American Chemist* for December. It was communicated by Dr. Bettger:—"When protochloride of copper's placed in weak hydrochloric acid, and submitted to electrolysis, the electrodes being made of copper, the anode becomes covered with snow-white crystals of chloride of copper, while there is deposited on the cathode a thick layer of very loosely-adhering spongy metallic copper. When the latter is well washed, and next placed in a small flask along with a filtered solution of bleaching powder (hypochlorite of lime), that salt is partly decomposed, yielding, at first, very pure oxygen gas, but afterward a gas (not specified) which extinguishes the light of a burning taper."

INFINITE SLOWNESS OF FORM CHANGE.—"Suppose one foot of coal represents fifty generations of coal plants; and that each generation of coal plants took ten years to come to maturity—then each foot-thickness of coal represents 500 years. The beds of coal in one field may amount to a thickness of fifty or sixty feet, and therefore the coal alone, in that field, represents 25,000 years. But the actual coal is but an insignificant portion of the total deposit, which may amount to three miles of vertical thickness. Suppose it to be 12,000 feet—which is two hundred and forty times the thickness of the actual coal—is there any reason why we should believe it may not have taken two hundred and forty times as long to form? I know of none. But, in this case, the time which the coal field represents would be 6,000,000 years. * * The coal Flora, viewed in relation to the enormous period of time which it lasted, and to the still vaster period which has elapsed since it flourished, underwent little change while it endured, and, in its peculiar characters, differs strangely little from that which at present exists. The same species of plants are to be met with throughout the whole thickness of a coal field, and the youngest are not sensibly different from the oldest. But more than this. Notwithstanding that the carboniferous period is separated from us by more than the whole time represented by the Secondary and Tertiary formations, the great types of vegetation were as distinct then as now. The structure of the modern club-moss furnishes a complete explanation of the fossil remains of the *Lepidodendron*, and the fronds of some of the ancient ferns are hard to distinguish from existing ones. At the same time it must be remembered that there is nowhere in the world, at present, any forest which bears more than a rough analogy with a coal forest. The types may remain, but the details of their form, their relative proportions, their associates, are all altered. And the tree-fern forest of Tasmania or New Zealand gives one only a faint and remote im-

age of the vegetation of the ancient world. Once more an invariably-recurring lesson of geological history, at whatever point its study is taken up—the lesson of the almost infinite slowness of the modification of living forms—the lines of the pedigrees of living things break off almost before they begin to converge."—*Prof. Huxley*.

PHOSPHATE OF LIME—SOURCES AND DISTRIBUTION.—Dr. Lankester notices, in *Nature*, a paper by Professor Dyer on this subject. We quote a part of the notice:—"Mr. Dyer points out the abundance of phosphate of lime in igneous rocks, but hesitates about tracing its origin in such beds either to direct chemical combination, or to the inclusion of organically-formed phosphate in the rocks in question. He does not, in short, discuss the possibility of the combination of phosphoric acid and lime in the primeval state of the globe without the intervention of life, which one distinguished geologist at least denies. Mr. Dyer traces the occurrence of tricalcic phosphate in the various sedimentary deposits with great care. He considers the many structureless masses of phosphatic deposits which occur 'as residuary evidence of formerly existing life, of which they are to some extent the measure,' as graphite is in other cases. A greater influence in the production of these masses is attributed to animal than to vegetal life, though marine plants are stated to be especially rich in phosphate of lime, and have undoubtedly played their part in its introduction into sedimentary strata. Mr. Dyer mentions that the recent *Brachiopod Lingula* has 86 per cent. of phosphate of lime in the mineral ingredients of its shell; and the occurrence of large quantities of phosphate of lime in the great Laurentian and Silurian formations is noticed by him in detail, as well as its occurrence in Devonian and Carboniferous limestones. In emerging to the group of mesozoic strata, we leave behind almost entirely those veins and beds of 'phosphate' which occur in the older and more changed rocks, where the segregation of the phosphate of lime has been more completely effected, owing to the greater age of the beds. In mesozoic and tertiary strata we find those nodules which have so erroneously been confused with 'coprolites.' Mr. Dyer accepts the history of the origin of these nodules which I have advocated in describing those which occur below the Suffolk Crags. Clay has a remarkable power of detaching phosphate of lime from its solution in carbonated water; and the phosphatic nodules are bits of clay which have become imbedded with great quantities of bones, and in some cases, probably, with sea-weed too; whence, by the intervention of gas-charged water, they have extracted the phosphate; hence all beds of phosphatic nodules occur near to argillaceous strata of special character."

PHOSPHORESCENCE IN RAREFIED GASES.—M. Sarasin details experiments undertaken to show the cause of phosphorescence in rarefied gases after the passage through them of an electrical discharge. One of his conclusions is that this phenomenon is due to chemical action. The gas is decomposed by the current, the oxygen contained in it is partially converted into nascent oxygen, or ozone, throughout the entire mass of the gas. In this condition it has a very strong tendency to unite with the other elements present; and, indeed, as soon as the current ceases it unites with them. This re-combination of the nascent oxygen or ozone takes place with energy, and may rationally be supposed to be accompanied by a generation of heat, which in its turn brings about the phenomenon of light which we call phosphorescence.

NEVADA FOSSILS.—Mr. Meek, in sending to Professor Leidy, for publication, descriptions of some fossils collected by the U. S. Geological Survey, under the direction of Clarence King, Esq., says:—"You will please state, in presenting the paper, that the trilobites described in it from Eastern Nevada are decidedly primordial types, and, so far as I know, the first fossils of that age yet brought in from any locality west of the Black Hills. Mr. King's collections also establish the fact that the rich silver mines of the White Pine district occur in Devonian rocks, though the carboniferous is also well developed there. The Devonian beds of that district yet known by their fossils, seem mainly to belong to the upper part of the system. Mr. King, however, has a few fossils from Pinon Station, Central Nevada, that appear to belong to the horizon of the Upper Helderberg limestone of the New York series."

CORRESPONDENCE.

Notes of Travel in Colusa and Yolo Counties.

[WRITTEN FOR THE PRESS.]

To persons resident in, and familiar with Yolo and Colusa counties, no explanation of the accompanying map of Grand Island is necessary. But as the work of reclaiming this section is one of the most extensive in the State, and therefore of more or less interest to all, I submit a few explanations.

Bridgeport, shown in the upper end of the map, is situated near the north end of Grand Island, six miles south of Colusa, and about eight miles north of the line of Yolo county. It consists of a store, blacksmith shop and a few dwellings. Eddy's Landing, six miles south of Bridgeport, is similarly situated. There is a ferry for crossing the Sacramento River at this point. Grand Island is a village of about 100 inhabitants, situated one mile south of Eddy's Landing, and is a very promising little place. John Bader is the village blacksmith, and C. J. & G. E. Diefendorf are the principal merchants. Knight's Landing, the principal shipping port in Yolo county, is situated at the lower end of Grand Island, on the west bank of the Sacramento River, and about 10 miles north of Woodland, the county seat of the county. It contains about 500 inhabitants and just now is quite a lively place, on account of the extensive levee (now being built by Reclamation Company No. 108), which gives employment to some 400 or 500 men.

Reclamation and Irrigation Plans.

A. H. Rhodes, Lewis A. Garnett and Chas. F. Reed are the Trustees of this company, and Capt. William Blanchard is managing counsel. These parties own 42,000 acres of swamp and overflowed lands. The district contains 72,000 acres, commencing at Knight's Landing on the south and running to Upper Sycamore Slough (near Bridgeport), 40 miles distant by the river. The imaginary line (see engraving) on the west bank of the Sacramento River, is to represent the course of the levee now constructing, which will be some five miles shorter than the course of the river. J. M. Lemon, Esq., of Suisun, is the contractor of this immense undertaking, and it is estimated that it will cost \$140,000, or about \$2 per acre, to reclaim.

The levee is built four feet high, 20 feet wide on the bottom by four feet wide on top. About 15 miles are now completed, and weather permitting, the entire work will be completed by the last of this month (January). A small portion of this island, just above the Yolo county line, and known as the "Mormon Basin," has been previously reclaimed, and produced 40 bushels of wheat to the acre last year. At the upper end of the island, some seven miles south of Colusa, this same company are putting three large dams in the Upper Sycamore Slough, and erecting flumes, for the purpose of irrigating this entire tract during the driest season. The imaginary line on the extreme west of the engraving represents the high land, to which point this company's claims extend. The supposition is, that if this company are successful and thoroughly reclaim this section (which is now not worth one dollar per acre), in one season it will be worth \$15 per acre—a splendid fortune for its projectors, and perfectly feasible of success. Chas. F. Reed conceived the original plan, and sought capitalists in San Francisco, who joined him in this enterprise.

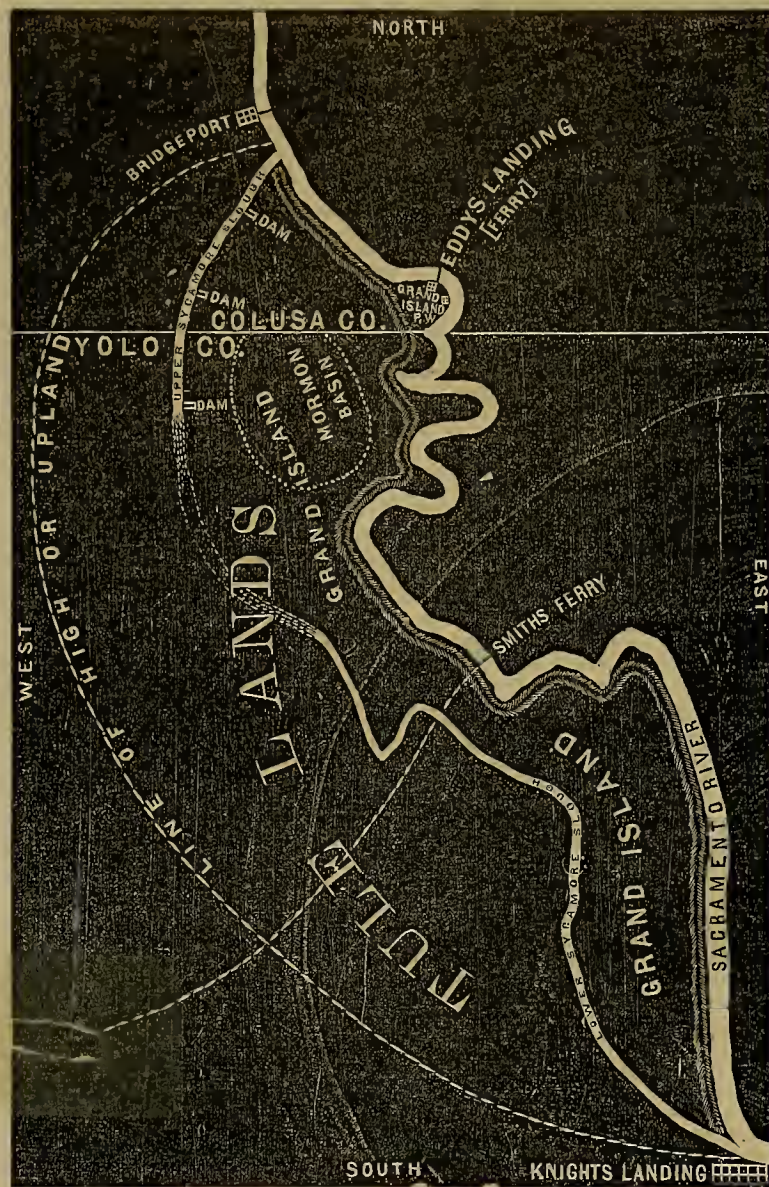
Mr. Reed's Ranch.

He proposes personally to seed 1,000 acres in wheat and 500 acres in barley. He has on his ranch stock of various kinds, including the best breeds extant. He purchased of Col. Younger, of San Jose, his thoroughbred hull, "Jeff Davis," paying therefor \$1,000. This bull received the first premium at our last State Fair. He

also purchased of J. Guill, of Chico, his thoroughbred cow, "Nellie," for \$500. In addition, he has numerous breeds of thoroughbred horned cattle. Of horses, he has colts of the Black Hawk breed, sired by Black Eagle, a horse which Mr. Reed purchased of Jones & Rochnell, of Vermont, for \$5,000. On Mr. Reed's place he has a steam engine, which is used for supplying his house with water; also for the stock in his fields. The water from the tanks supplies a fountain in front of his residence, and then passes by pipes to his fields for the young stock. He is also the owner of a large warehouse in the town, the capacity of which is over 5,000 tons. The specimen of wheat I send you, is called *Tow-selle*; and from seven pounds sowed by C. Barney (3¼ miles southwest of Knight's Landing), 240 pounds were reaped. The specimen of seven pounds was from the

5-inch face and 2¼-inch pitch, in which works a 10-inch pinion, which is connected with the engine by a combination of gearing so arranged that by the working of four clutches the machine can be propelled either forward or back from one to 10 miles in 10 hours, without any increase or decrease of the speed of the engine. The hind wheels are six feet in diameter and one foot face, work loose on a crooked axle similar to the hind axle of our large city trucks. The hind part of the machine rests on a rocker placed on this axle, to which are attached tiller-chains, which pass around the forward end of the machine and are worked by a worm gear with a crank, which guides or steers the whole machine.

A few feet forward of the middle of the machine is an iron wheel, seven feet in diameter, to which are attached four knives, angular-shaped, and which extends 12 inches



Department of Agriculture at Washington, to Chas. F. Reed, Esq., and \$5 per ounce was refused for the same at the last Chico Fair. This wheat will average 65 pounds per bushel.

At Knight's Landing, Messrs. Rhodes, Eves & Co. own a very fine flouring mill, run by a 40-horse power engine, and turn out about 20,000 barrels of flour annually, besides ground feed, barley, corn meal, etc. Messrs. Langenour & Brownell, of this place, are the principal shippers of wheat, barley and wool. For the 12 months just past, 10,000 tons of wheat and barley, and 25 tons of wool were shipped. The capacity of their warehouses is 9,000 tons.

Fletcher's Steam Ditcher.

A. Fletcher's steam ditcher, now successfully at work ditching on the farm of Chas. F. Reed, is 41 feet long, 12 feet wide and 12 feet high, has an upright boiler (8 feet long, 44 inches in diameter, and with 109 2-inch tubes), attached to which are two engines of 7-inch bore and 12-inch stroke, which with 100 pounds of steam and 150 revolutions, give 24½ horse-power. The machine stands on four wheels. The forward or propelling wheels are eight feet in diameter, with 2-foot face, and are attached to the forward shaft like the driving wheels of a locomotive. To one of these wheels is attached an internal gear, 6-feet diameter,

each way laterally. This wheel revolves about 30 times a minute, cutting a ditch two feet wide and 4½ feet deep. Upon each side of this cutting wheel are knives extending from the bottom of the wheel upward and outward, like the sword cutter of a plow, which trim the outer edge or side of the ditch, and give the slope, or flare, as desired. Following this wheel is a scraper, the point of which comes under the wheel, and extending backwards and upwards is an apron or belt of india rubber, two feet wide, upon which the wheel drops the dirt, cut and pulverized fine. This is carried back and up to the rear of the machine, where it drops on to a top or side apron, which carries it to either side of the ditch. This side apron is arranged so that it will carry the dirt either to the right or left, by moving a clutch. As the cutting apparatus is working, the whole machine is moving forward, and the quantity of work it does is regulated by giving it a fast or a slow motion forward, without changing the speed of the engines. It costs about \$5,000, weighs seven or eight tons, and was constructed by I. H. Small, corner of Beale and Market streets, San Francisco.

Woodland.

Woodland, the county seat of this (Yolo) county, is one of the finest looking towns, for its size, in the State. It probably contains 1,000 inhabitants. Over two-thirds

of its buildings are fire-proof brick. They have as fine county buildings here as anywhere in the interior; a splendid college building, ranking among the first in the State, not only as to size, beauty and material, but also in the aggregate attendance of its pupils; also a fine bank, known as the Bank of Woodland, with a capital stock of \$200,000; and several manufactories. The Yolo Brewery building and its surrounding shrubbery is a noticeable feature near the suburbs. Jas. Sibley manufactures all kinds of doors, sash, scroll work, sawing and planing; and C. Elliott, Esq., manufactures all kinds of carriages, huggies, sulkeys, express and lumber wagons, also Miller & Elliott's patent improved carriage construction, of which an illustration with full comments were published in your issue of September 24th. Mr. E. employs regularly 10 men, and has on hand specimens of nearly every vehicle known in his splendid two-story fire-proof brick building, 60 feet deep by 84 feet front, situated in the upper end of the village, on its principal street. Gray & Wood are the principal dealers in hardware and agricultural implements, and Dr. D. D. Hunter presides over its best hotel.

L. P. MO.

San Francisco Notion versus Boston Notion.

EDS. PRESS:—In your last issue, you notice a Boston device by which runaway horses can be instantly detached from their carriage. But is not the San Francisco invention of Dr. Le Plongeon (recently patented through your office), by which runaway horses can be instantly checked and controlled and kept by the carriage, infinitely preferable? Detached runaway horses may do much harm to others, but Le Plongeon's contrivance prevents all this. His halter is cheap, can be fitted to any bridle, and is well worthy of a trial. It can be found at Main & Winchester's, Battery street.

[Personally, we should greatly prefer Dr. Le Plongeon's method to the other, and coincide fully in the opinion of our correspondent in believing that it is at least "well worthy of a trial."—EDS. PRESS.]

Cool Impudence.

A couple of New York lawyers send us a request to insert an advertisement in our paper, to the effect that they will obtain divorces anywhere, anyhow and for anybody, and without any publicity. We suppose the last means that they propose to obtain divorces without the knowledge of more than one of the parties interested.

This matter of obtaining divorces seems to be quite a flourishing business in the States beyond the mountains. Almost every day we see accounts of most disgraceful events of the kind. To such a shameful extent are these things carried on, that people are becoming aroused to the necessity of taking strong measures in the matter; and one New York judge has declared from the bench that he will mete out heavy punishment to legal parties who carry through the improper divorce cases by unrighteous means.

However our Pacific Coast population may compare in other respects with those of the Atlantic Coast, we have not yet reached the point attained there in this respect. We consider it exceedingly cool, not to say impudent, on the part of the lawyers referred to, to send us such a proposition; and as we do not propose to play the part of pimps, we decline inserting their advertisement.

INTERESTING TIDE FIGURES.—The height of the tide is from 5 to 12 feet on our Atlantic coast, and from 2 to 4 feet in the central Pacific ocean. In the Bay of Fundy it is from 50 to 70 feet. At this locality the waters of the in-coming tide are raised so high that, as they advance, they seem to be pouring down a slope in a turbid waterfall of great extent. In the Tsien-tung River, in China, the advancing water rushes on like an advancing cataract, 4 or 5 miles broad and 30 feet high, and speeds up the stream for 80 miles at a rate of 25 miles an hour! The change from ebb to flood tide is almost instantaneous. In the Amazon river, the incoming tide passes up the stream in five or six waves, each 12 to 15 feet high, which follow one another in rapid succession.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

EXCHEQUER.—*Miner*, Dec. 17th:—The mill is progressing. The mine, since the air shaft struck through, is worked for ore, and turning out some of fine quality.

GLOBE.—Work on the mill is going ahead, and the balance of the machinery is expected soon. In the south drift ruby silver continues to be met with.

SCHENECTADY.—The winze to connect the lower and upper works was cut through last week. Good air is now plentiful, and work is going on in several places. We hear that a mill will go up as early in the Spring as possible.

RICH.—A body of ore, the richest and best which has been opened in Alpine since the big strike in the Tarbush four years ago, was entered by the drift of Monitor tunnel No. 3 this week.

SILVER GLANCE.—Same of 24th:—Some fine indications in this tunnel this week: true silver glance ore and the diamond shaped crystals of gypsum, which are said to indicate native silver, are found.

M. & N. W.—In this mine the ore continues and a vast body is being exposed ready for Spring operations.

RUSHING IT.—In the south drift of the Globe mine splendid work is being done. Twenty-seven feet was added to the length last week and 144 during the past six weeks.

LEVATHAN.—The men working in the up shaft from the lower tunnel complain of the same noxious gas which four years ago drove everybody from the face of the upper tunnel.

MINES SOLD.—We are permitted to state that negotiations are complete and two well known claims adjoining the Globe property, the Marion and the Chicago & Detroit, have been added thereto.

NEARING THE LEDGE.—*Chronicle*, 24th:—The Mount Bullion tunnel is progressing finely, and is rapidly approaching the main ledge—the Wellington—of the company.

AMADOR COUNTY.

LITTLE AMADOR.—*Ledger*, Dec. 24th:—This mine, at Amador City, is steadily improving as they go down, and last week they struck the richest rock ever found in it. We hear that the vein is five feet wide, and the rock completely studded with gold.

CONEX.—*Dispatch*, 24th:—We understand some very rich rock is being taken out of one of the shafts of this mine.

LANCHA PLANA.—Same of 31st:—We learn that the mines in the vicinity of Lancha Plana are paying better this winter than for several years.

BUTTE COUNTY.

THE WATER IN CHEROKEE.—*Oroville Record*, Dec. 24th:—The great iron pipe had its first trial two weeks ago and gave way. This looked gloomy; but repairs were made, and on Monday last the water was again turned in. The excitement in town was intense. Everybody in town turned out to see the result. In three hours and forty minutes the stream poured forth at the mouth. Men shouted with gladness. Anvils were fired. Rejoicings were kept up all night. The "richest mining section in the State," dependent for 20 years upon the winter rains for water, has now a living stream.

CALAVERAS COUNTY.

RICH SULPHURETS.—*Chronicle*, Dec. 24th: Half an ounce of sulphurets, taken from the Palomo mine at a depth of 400 feet, assayed four and a half cents. This is at the rate of \$2,160 per ton.

NO WATER.—All the mills and mines have been compelled to cease operations for the lack of water. The ditch is frozen up at its head. The weather is moderating, however.

WHAT CHEER CLAIM.—A company has been formed to re-open the old claim in Chili Gulch. The machinery at Gleason's Incline Tunnel, near the Junction, is being removed to the What Cheer. Work will be commenced as soon as the hoisting works are erected. An incline 450 feet in length will be run to reach the channel.

ITEMS.—Same of 31st:—At the Palomo the batteries have been in operation since Monday. The main shaft of 400 feet is being heavily retimbered. The lead is wide in the bottom of the shaft and the rock prospects largely. At the Junction Paul & Co. are getting out good gravel. Their tunnel is over half a mile in length, nearly perforating Stockton ridge. Having "struck the channel," they are "breasting out" and getting fair pay. In Chili Gulch Brackett & Co. and Shaw have been compelled to suspend operations, tempora-

rily, for the want of water. The Union Shaft Co. and Megaw & Co. are steadily employed. The former are making considerably more than wages. Work is being vigorously pushed forward upon the What Cheer. The machinery is all on the ground and the incline will be commenced in a few days. On Tunnel Ridge Mosher & Co., Johnson & Co. and Blake & Co. are actively employed with fair returns.

INYO COUNTY.

FISH SPRINGS.—*Cor. of Independent*, Dec. 19th: The mines are two miles northeast of town, and are owned by Messrs. Westerville & McMurry. They are working from 15 to 20 men most of the time. The rock pays from \$30 to \$60 per ton, in arastras.

NEW DISTRICT.—A mining district has been formed nearly opposite Bishop Creek, in the Inyo Mountains. We have a specimen of ore from the "Peerless," a ledge located on the 15th, which indicates considerable richness in "flour" gold, assaying \$300 per ton. The ledge is five feet in width, and traceable 1,200 feet.

The same of Dec. 26th gives the results of four assays of the rich ore struck recently in the Eclipse mine. They range from \$772 to \$4,231 per ton; average, \$1,898.

LASSEN COUNTY.

BIG VALLEY.—The Susanville *Sage Brush* of Dec. 10th says the miners were about to hold a meeting to make laws for the district, which would compel all owners of claims to stay on the ground to hold them.

NEVADA COUNTY.

CEMENT HILL.—*Gazette*, Dec. 28th: Messrs. Rolfe, Stranahan & Co. have one of the most substantially built flumes in the county. It is 750 feet in length, four feet wide and two deep, with a grade of eight inches in 12 feet. In the flume they have three undercurrents, each with a drop of from 15 to 25 feet. Rolfe & Co. have all their pipe upon the ground, and will be in readiness for work by the end of this week. They have 15-inch pipe connecting with their bulkhead, and extending down 500 feet, where it will connect with 11-inch pipe. They will have 175 feet perpendicular pressure, and will use 500 inches of water.

MEADOW LAKE.—*Transcript*, Dec. 23d: Capt. Hanly came through on Wednesday, part of the way on snow shoes. The prospects are encouraging. The Grant mine is yielding handsomely. The 8-stamp mill erected by Squire & Pattison has been running until the late cold weather, when everything froze up. The mine has been opened to the depth of 100 feet, and the rock pays \$12 to the ton in free gold, and yields a large amount of rich sulphurets. The ledge is three feet thick. The Mohawk and Montreal mill has been working rock from the Greenhorn mine. About 120 tons paid \$23 per ton. The Samary ledge, at 14 feet below the surface, yields well; and on the surface the croppings, 10 feet wide, can be traced 1,000 feet. Rock will be crushed in the spring. The Scoddiac, owned by Hanly & Co., is three feet wide on top and prospects well. At Ossaville, near Meadow Lake, Bull & Culbertson have fitted up a mill and are working three or four ledges, which give promise of great richness.

THE SEASON.—Same of 29th says: The extremely cold weather has frozen the ditches, and the small amount of water, which has fallen has been of little benefit to the miners in the upper part of the county.

BLOOMFIELD.—Same of 30th: The Gravel Co. are still prospecting in the basin at Malikoff. The gravel deposit is 208 feet from surface to bed rock, and 50 feet of this prospects big. They have run 60 feet in the main drift, and are running two other drifts. The claims are paying well, 11 hands are employed, and the gravel is washed as it is taken out, yielding an average of \$350 every 24 hours.

ERIE MINE.—Veatch & McCullough have commenced running their 5-stamp mill, and are succeeding beyond their expectations. Forty men are employed. The ledge is 16 feet wide and pays from \$20 to \$30 per ton, including the casings.

NORTH STAR.—*Grass Valley Union*, Dec. 23d: On Tuesday Mr. Hoyt shipped below a bar of gold, valued at between \$6,000 and \$7,000.

ALTA No. 3.—Same of 28th: Work on this gravel claim is pushed. The Co. have erected hoisting works, and are sinking their shaft as fast as possible. They are down 50 feet, and will soon reach the gravel bed.

EUREKA.—This mine had its regular clean up and melting yesterday. The result for the past 12 days, exclusive of sulphurets, was three bricks containing \$27,000. The Co. have been running on low grade rock which has been above

ground for some time. The preceding run of 12 days yielded \$33,000.

ITEMS.—The *Union* of January 1st gives an extended review of the mining situation. We select items in brief: The new mill of the Empire is almost ready for crushing. There are 20 stamps of 810 pounds each. A heavy Blake's rock-breaker and 10 Hendy's concentrators will be used. The mine is already pumped out, and there is wood enough on hand to last until July. The North Star is opened to the 10th level, 1,200 feet down on the incline. Much new work has been done, all of which has been paid for from the proceeds, besides the regular dividends. South Star Co.'s hoisting works will be running in two weeks. Sazerac gravel claims have been leased to four miners. Eureka yield for December was \$69,410. Greenhorn mine is stopped for want of water to run the mill. The last crushing of the O'Connor mine (Grass Valley Consolidated), with specimens sold, paid \$60.75 per ton. Allison ranch mill is running most of the time. Grant mine got \$600 from 35 loads rock at Perrin's mill.

PLACER COUNTY.

RICH STRIKE.—*Stars and Stripes*, Dec. 29th: Another rich pocket was struck last week by McClure & Tharpe, in the new shaft on their claim, on Duncan Hill. One day they obtained by hand crushing \$250, the next day \$200, and within the week near \$1,000. They have also taken out, from the neighborhood of this, a considerable quantity of milling rock that will yield \$50 per ton.

BLUE CEMENT.—The Indiana Hill Mill and Mining Co., below Gold Run, last week finished crushing 300 car loads, which yielded an average of \$3.

SURVEYING QUARTZ CLAIMS.—*Herald*, Dec. 24th: United States Deputy Surveyor has been surveying the mines of the Ophir Co., the Green mine and others in the vicinity of Ophir, preliminary to purchase under the Act of Congress of 1866.

NO WATER.—Mr. Reamer has the Bear River & Auburn ditch cleaned out and ready for water, but there is no water to fill it. The cold weather holding the snow on the mountains has almost exhausted the supply in Bear river.

PLUMAS COUNTY.

EUREKA MILLS.—*Quincy National*, Dec. 24th: The Co. have closed their mills for the winter, but will continue to work a light force in the mine, developing for next season's run. They have taken out more money during the past season than for any other since inauguration of work upon the mine in 1851.

NEW DIORINOS.—Wm. Roach, in Jamieson District, has been striking a good range of gravel, on Bear Creek, two miles west of the town.

SNAKE LAKE.—*Cor. of same*: Metcalf & Haycock have finished another large reservoir. Metcalf is working five men, cutting bed rock and tunneling. Haycock has two men, tunneling. Challans, Smith & Co. have done well in the old Jacks' claims. Esq. Jacks keeps pogg'ing away and occasionally gets a "knock." The Golden Enterprise are moving in their undertaking below Spanish Ranch. The Co. tunneling through the Devil's Elbow have succeeded well, and will, by July, tap the creek; they will then drain half a mile, which will pay big, in places. McCarger & Pearley are prepared to hydraulic on Pine Leaf, when water is plenty. The Silver Creek miners are waiting for a rise in the creek, as well as the Meadow Valley boys. Tom Ivey and Taylor, on Emigrant Hill, have struck good pay dirt; and Radley & Coleman have made a new discovery near Butterfly Valley, the gravel on the rim rock prospecting 40 cents to the pan.

SAN BERNARDINO COUNTY.

CLARKE DISTRICT.—*Guardian*, Dec. 24: Capt. Moss and Dr. Cochran inform us that the mines continue to be worked with satisfactory results.

SIERRA COUNTY.

WATER SHORT.—*Democrat*, Dec. 22d: The water in the lakes from which the Reis and Independent mills get their supply is so low, owing to the cold weather, that it is impossible to work more than half the stamps. Ore has accumulated in consequence, and some of the workmen have been discharged.

KEYSTONE.—*Messenger*, 31st: The lower tunnel is nearly completed. The workmen have commenced to drill a "long hole" to tap the shaft and let off the water. The new tunnel is fourteen hundred feet in length. It is expected that the mill will be started before long.

SISKIYOU COUNTY.

LITTLE HUMBUG.—*Yreka Union*, Dec. 28:—A. Best and W. G. Rider have purchased a half interest in Commodore Jones'

claim. Should there come a good head of water this winter, there will be twenty men at work on the creek.

SCOTT VALLEY.—*Cor. of Yreka Journal*, Dec. 28th:—Jenner & Co., at the "Etna Claim," have succeeded in striking upon apparently the main channel, of richly paying dirt, which is thought to run through the foothills, from South Fork, the extreme length of Scott Valley. It appears to be of equal richness for a depth of five feet. A set of night and day lands, are placed on, to secure the utmost advantage of the water as it comes.

TUOLUMNE COUNTY.

QUARTZ.—The *Sonora Democrat* of Dec. 31st says: The quartz mining interests in this county seem to be looking up again. The Grizzly Mine yielded largely from the surface down a short distance. It changed hands several times. An English Co. spent large sums without success. Last fall work was again commenced by the same company, under intelligent management, and has resulted in the development of rich ore, and the mine now has every prospect of being successful. The Knox & Boyle mine, from had management was run into debt and sold at forced sale. The purchasers have worked only for the purpose of ascertaining the value. Tunnels and shafts have been run until it has developed a mine of great richness. The App mine was sold two years ago to parties in the East. For some months sinking of shafts and driving of drifts has been going on which result in showing large bodies of fine ores. Ore from the Heslep mine has been continuously worked at a small profit for years. Within a few weeks a body of extreme rich ore has been reached, which, when opened, will produce large. A few days ago some parties discovered a rich vein near Yankee Hill. The Confidence mine has been worked a year, and has made satisfactory returns, much of the time yielding largely. In this mine, there is paying ore enough in sight, and some of it very rich, to require machinery for crushing several years to come. Never until the present management could it be made to pay.

TRINITY COUNTY.

NEW RIVER.—*Journal*, Dec. 24th:—A correspondent from Pony creek, says that the miners have gone into Winter-quarters. Eleven men will winter there.

CANYON CITY.—*Cor. of same*:—L. G. Fisher and W. W. Allen are opening a claim on the head of Tyson's Bar. Chinamen are constructing a hydraulic 400 feet in length across Red Flat. C. J. Foran—known as "Happy Jack"—has taken charge of David Evans' East Fork ditch.

YUBA COUNTY.

STUCKER FLAT.—*Marysville Appeal*, Dec. 22d: The Blue Point Mining Co. for the past four years have done little except in tunneling. During this time a tunnel 2,100 feet in length has been made, and the powder drifts at the interior end are now just completed. The flume connecting with the tunnel is a mile in length. The powder drifts are 17 feet from the surface, and into them will be placed 2,500 kegs of black powder. The blast will be the largest ever made in the world, and, if successful, upwards of 33,000 tons of earth will be loosened. The work thus far on these claims has cost the company over \$150,000.

Same of 31st, says the blast was let off on the 29th, and was a complete success.

SMARTSVILLE.—*Appeal*, Dec. 22d: The Pittsburg and Yuba River Co. have sunk two shafts, one to the depth of 35 feet, but could not sink to the bed rock, on account of the water. They found blue gravel the entire distance, most of it very rich. This company proposes, should the cement prove rich enough, to erect a mill, and crush it, if so they will not run a tunnel. At the Blue Gravel Co.'s claims they are running a tunnel which will require a year to complete. Meanwhile they are washing top dirt. Upon the Smartsville Consolidated Co.'s claims they have been washing continually since July, and have now just finished cleaning up. They make another blast to-day or to-morrow.

Same of 31st says: During last week two blasts were made, one of which was not entirely successful. In this, 700 kegs of powder was used, and but 100 exploded. This was sufficient to cover up the rest of the powder, so that they were obliged to wash away the earth to get at it. In doing this it was wet, so that out of the remaining 600 kegs but about 30 were recovered in good condition, putting them to a loss of about \$3,500. It was expected that they would make another blast yesterday of 700 kegs.

TRIBUTOO.—*Appeal*, Dec. 22d: But little has been done during the winter, ex-

cepting upon the Babb claims. Here they have been crushing cement at the mill all the time. The cause of delay in the work on these claims, is the moving of the pipes that supply the water, and replacing with new ones.

Nevada.

COPE DISTRICT.

U. S. GRANT.—Elko *Independent*, Dec. 24: This mine is near the Argenta. The width of the lode is 16 inches. Specimens sent us were completely filled with sulphurets, and assay well.

REESE RIVER.

FROM CORTEZ.—*Reveille*, 22d: Mr. Fitzgerald has just arrived. Several claims are being worked, but owing to the want of mill facilities the miners confine themselves to the extraction of ores rich enough to stand the cost of transportation. Their nearest point is Mineral Hill, twenty-five miles.

BULLION.—Same of 26th: On Friday and Saturday, the Manhattan Co. shipped 22 bars of bullion weighing 2,062 pounds, and valued at \$29,650, to New York.

Same of 30th: The Manhattan Co. shipped last evening ten bars weighing 917 pounds, and valued at \$13,103.

BELMONT.—White Pine *News*, Dec. 16th: Thos. Cahill, just returned, gives us: Canfield, of the Transylvania, is building a 10-stamp mill, and a better furnace, of the Stetefeldt pattern, than has yet been erected. He expects to have the establishment in operation in four weeks. Four hundred tons of first-class ore on the mine dump, every pound of which is fit for cabinet specimen. Beside, three to four hundred tons of second-class ore are on the dump—working \$150 to \$175 a ton. The 'Combination' mine has changed owners; and in two months active operations on a large scale will be commenced. Silver Champion, lately purchased by Judd Bates, has out 6 tons of ore of an average assay value of \$1,500.

WASHOE.

OPHIR.—*Enterprise*, Jan. 1st: Work is prosecuted in the up-rise toward the old ore ground at the central line. As good ore was struck in the ninth level about this point, it is expected that the up-rise will tap the same 150 or 200 feet below. The past year has been barren of results, so far as finding pay ore is concerned. Five assessments have been levied, amounting to \$255,000.

IMPERIAL-EMPIRE.—The drift east from the 1,300-foot level has penetrated to the east wall of the ledge without finding ore. The annual report of the Empire gives the following: No bullion has been produced during the year. The shaft has been sunk from 1,179 feet to 1,300 feet, and retimbered between the 600 and 800-foot levels. The amount expended is \$23,782. The shaft has been sunk in connection with the Imperial, at a total cost to the Empire to date of \$129,591. The Imperial are now drifting in the 1,300-foot level, and the Empire are awaiting the result.

YELLOW JACKET.—After a stoppage of a month to put in new hoisting machinery, this Co. have resumed operations. From the winze 300 feet north of the shaft below the 900-foot level, some extra good ore is being extracted. Day before yesterday they resumed shipping ore to the mills on the river.

SIERRA NEVADA.—The mine is yielding the usual ore. The mill shut down December 24th for repairs, at which time they made a shipment of bullion amounting to \$10,752 18. The mill will resume work the present week. The Evans mill is in constant operation upon ore from the mine.

CHOLLAR-POTOSI.—This mine continues to yield well with some improvement in the quality of the ore. A drift is being run from the main west drift to cut the vein under the Belvidere section.

VIRGINIA CONSOLIDATED.—The drift to the west is in 1,040 feet. The rock in the face is favorable, though somewhat harder. The north-west drift is now in 70 feet.

HALE AND NORCROSS.—The daily yield is 175 tons from all parts of the mine, but principally between the sixth and seventh levels. The ore body on the lowest level has improved.

CROWN POINT.—There has been no change in the deposit found in the south drift upon the 1,100-foot level.

DANEY.—The station for the 300-foot level has been opened and timbered. From this a drift has been opened toward the vein, which is in nine feet.

SEGREGATED BELCHER.—This Co. are working one shaft on a drift east between the 400 and 500-foot levels, for the purpose of tapping the east ore body. The drift is in 70 feet.

GOULD AND CURRY.—A good deal of prospecting is being done in the old

upper works, but no new bodies of ore of any extent have been found.

WHITE.—This new lead, still looks well. The owners have drifted south upon it for 25 feet, and find that it holds its width for that distance. It is supposed to be a continuation of the Comstock.

HOPE.—This is yielding as usual. Owing to the freezing weather two weeks ago there has been little water since.

BELCHER.—The drift west upon the 420-foot level has as yet developed nothing valuable. Some low grade ore is found at the bottom of the incline on the 334-foot level.

SAVAGE.—Some good ore has been found in the upper works, considerably increasing the total yield. The ore breasts on the ninth level are looking better. The assays have improved.

OVERMAN.—The company are extracting 90 tons of ore per day from their 400-foot level, north of that portion of the vein which is in litigation. Mine looking as usual.

WHITE PINE.

REVIEW.—*News*, Dec. 31st: Mining matters have, during the year past, assumed a different shape. Claims formerly worked on a small scale have mostly got into the hands of large and partly foreign companies, who are working not only extensively, but systematically, and more with a view to later than immediate profits.

BULLION.—During December, Wells, Fargo & Co. shipped from their office in this city the following amounts of bullion: West, 9 bars, valued at \$19,999 39; East, 116 bars, \$138,587 31; total, 125 bars, valued at \$158,586.70.

[For want of space we omit, this week, further notice of White Pine.—EBS. PRESS.]

Arizona.

ITEMS.—Prescott *Miner*, Dec. 24th: On the Rainbow lode, an incline tunnel of 35 feet struck the ledge, and shows 2½ feet of ore, a great deal of which will yield \$1 to the pound. The owners have another tunnel in 125 feet. In Martinez district prospects are favorable. The ore from the Mayflower will be crushed at Wickenburg. Work has been commenced on the Queen of Palmyra and Gnomes lodes. Messrs. McCrackin, Owens, Hammond and Poland, returned from the Bradshaw mts., Monday. They report the chances of success flattering. New and rich lodes are constantly being found. Curry & Moreland had sunk 30 feet, and had 2½ feet of rich ore. The Del Pasco shaft turns out extremely rich rock. The owners are timbering the shaft. The party south of Silver Mountain found fair prospects—one piece weighing eighty cents. In Hassayampa district, there are about 30 men placer mining. On Lynx Creek, Shelton had taken \$1,000 from eight wheel-barrow loads of decomposed ore from the Vernon. Uncle Billy Pointer was getting better ore than ever.

Idaho.

ITEMS.—*Avantache*, Dec. 17th: Golden Chariot receipts for November were \$76,187 71. They are keeping the Webfoot mill running on Mahogany ore, and has had 50 tons worked at the Cosmos, which yielded \$51 per ton. This may be considered average ore. The Belle Peck shaft is down 45 feet, showing the ledge to be of an average width of ten inches, containing rich sulphurets of silver besides gold. The new Chariot hoisting works are being put up, and the old machinery will be removed to the Peck & Porter. Good looking ore is taken from the Oro Fino, and operations continue on the Illinois Central, Skookum and Chipmunk.

Montana.

CABLE CITY.—Deer Lodge *Independent*, Dec. 17th: The survey of the new ditch has been completed, and the contract will be let in a few days. The Cameron mill is pounding out gold at the rate of \$1,000 per day.

HIGHLAND.—John Anderson says there are but five companies at work on the placer mines, and that they are only doing tolerably well. Nevens & Fair have completed the tunnel to the Nevues ledge, and have in sight a large body of very rich ore.

GIMLET GULCH.—This has paid well all season, \$100 to a single rocker was made in one day.

JEFFERSON GULCH.—The Ruhl Bros., after working all Summer on ground that paid only \$6 per day, started a new cut and cleaned up from one pit \$900. This was an average of \$15 per haul. But the best claim is the Harris Bros., averaging from \$7 to \$13 per day all the season.

WHITLATCH CO.—*Helena Gazette*, Dec. 21: Yesterday Mr. McClure furnished us the result of a run on 225 tons of quartz from

the Parkinson lode: Number of ounces, 322.48; 798 fine; value of bullion, \$5,319.66—a little over thirty dollars to the ton.

PHILIPSBURG.—*New North West*, Dec. 16th: The mill starts Monday if the quicksilver arrives. Manager Plaisted thinks he will have Hope rock enough all winter. Other parties are preparing to take out milling ores. The C. S. S. Co.'s Smelters, have dried up for alterations; will start again in ten days. They run out two tons in the last ditch; are confident as ever of success.

MOOSE CREEK.—The Harvey lode shows a six-foot crevice of \$200 ore. The Day lode has an incline 100 feet in and has a splendid body of ore showing native silver.

FOREST CITY.—Missoula *Pioneer*, Dec. 1: On Nos. 61 and 62, with a couple of drifters, 250 ounces of gold were taken out after a week's run.

KADERSBURG.—*Cor. of Montanian*, Dec. 22d: The Keating lode never looked so promising as at present. We have our levels driven 500 feet. We started our mill on the 6th inst., and we don't expect to stop it for two years. Jacob Nave's ground, on the Iron Clad lode, shows a vein of black iron ore 5 feet in thickness, which is paying \$25 to \$30 per ton.

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Jan. 5.

The Mining Share Market has been irregular during the past two weeks, in which time have occurred the two holidays of Christmas and New Year's Day, to interrupt the usual course of business. Our review extends from the 22d of December, our last date, to this present day.

Alpha has been in the market only twice, selling at 5. Amador has sold a couple at times at 280 each. Belcher has varied from 6¼ to 8. An assessment of \$1 per share became delinquent on Tuesday. Chollar-Potosi has sold between 68½ and 75, closing this morning at 74 to 74½. Last week 1,700 tons of ore were extracted from the mine, which averaged \$70.10. The company report \$362,458 on December account. Crown Point has been lively at 15 to 17½, rising to-day to 18½. Last week, 265 tons of ore were raised, valued at \$6,689. Daney has declined from 6¼ to 6, with but little demand. The engine shaft and pump were completed on the 24th ult., when drifting for the vein had commenced.

Eureka has been quoted on two days, at 370 and 375 to 380. A dividend of \$10 per share for December has been declared, payable on Saturday. Eureka Consolidated has been quite lively at 15½ to 16½. Golden Chariot has fluctuated greatly. It commenced at 87, fell to 72, rose to 79½ to fall again to 64½, and then came up again to 72½. In December, bullion shipments of \$46,227 were made. The December dividend was omitted, but one of \$4 per share has been declared this month, payable on the 10th.

Gould and Curry has been a variable stock, but has had a general fall from 75 to 45 in the last two weeks. A summary of the annual report will be found below. Hale and Norcross has sold from 110 to 96, selling to-day at 103. Last week 900 tons were taken from the mine. Ida Elmore has varied from 17 to 14, and Imperial from 17 to 11 last week and 11 to 22½ this week. Kentuck sold at 30 to 35.

Meadow Valley has sold largely, as usual, and at prices varying from 20½ to 28. Ophir fell from 5½ to 2¼ and then rose to 4¼. Mammoth has sold from 25 to 35 cents; Original Hidden Treasure from 6 to 7, dropping to-day to 3. Overman has varied from 4¾ to 2¼. Nearly \$40,000 were received from the mine in December. Savage has sold in large amounts, from 41¼ to 56. Last week 1,200 tons of ore were raised, assaying \$46.94 per ton. Sierra Nevada has ranged from 20½ to 18, Yellow Jacket from 39 to 48½. The latter company have to-day declared a dividend of \$2 per share, payable on the 10th, their first for 22 months. The last dividend paid was one of \$5 per share, March 15, 1869. The fire in April of that year stopped further dividends.

The coinage at the San Francisco Branch Mint for December amounted to \$1,676,000, in double eagles, eagles and half-dollars. The value of the deposits of refined gold and silver during the past year amounts to \$16,644,462.93.

GOULD AND CURRY.

The annual meeting of this company was held last week, when Alpheus Bull, Wm. Norris, A. K. P. Harman, C. L. Weller, B. F. Sherwood, R. F. Morrow and J. D. Fry were

electd Trustees. The Secretary's report shows the following:

RECEIPTS.	
From 23,499 tons ore worked at Custom mill.....	\$661,013
Premiums, sale of Shutes, etc.....	6,891
Sale of 208 tons ore.....	1,677
Assessments.....	132,000
Sundry mill material sold.....	13,387
Returned freights V. & T. R. R. Co.....	5,068
Miscellaneous.....	1,086
Total.....	\$19,092
DISBURSEMENTS.	
Cash indebtedness, Nov. 30, 1869.....	\$29,934
Dividends to stockholders.....	48,000
Labor at mine.....	229,399
Timber and Lumber.....	59,978
Iron, Hardware, Charcoal, etc.....	39,175
Machinery and Foundry work.....	16,387
Candles.....	4,940
Sundries on account of mine.....	14,531
Mill account.....	4,338
Shipping 23,194 tons ore Custom mill.....	302,063
Taxes.....	6,576
Exchange.....	2,934
General expenses.....	22,211
Interest.....	2,665
Miscellaneous items.....	8,482
Total disbursements.....	\$792,240
Cash on hand November 30, 1870.....	26,852
Total.....	\$319,092

The assets of the company aggregate \$203,614, against which there are liabilities amounting to only \$2,629. The Superintendent reports 24,305 tons of ore taken from the mine during the year, averaging \$28.16 per ton. All this ore was from the old portion of the mine. A large and valuable deposit was discovered at the Potosi section, and other bodies of ore are expected in the northern part of the mine, towards which explorations are now being made. No estimate of the present quantity of ore in the mine has been made, owing to the irregularity of the deposits. An aggregate of 11,358 feet of drift has been run, and 1,953 feet of old drifts re-opened and repaired. The upper 400 feet of the shaft will have to be retimbered without delay.

This President's report gives the following table of ore production, average yield, cost of extraction and of reduction per ton. The cost of milling certainly seems high notwithstanding the assertion that, but for this unusual proportion of first class ore worked, the operating expenses this year would have presented a still more favorable comparison.

	Ore, tons.	Yield.	Mining.	Milling.
1870.....	24,305	\$28 16	\$6 82	\$12 85
1869.....	15,879	26 30	7 29	13 08
1868.....	12,153	18 14	3 73	12 62

According to this same report the total product and expenses of the company for the past three financial years have been as follows.

	Product.	Expenses.
1868.....	\$102,054	\$209,307
1869.....	308,855	395,923
1870.....	690,104	688,539

DIVIDENDS.

During December, dividends were paid by various mining companies as follows:—Black Diamond Coal Co., ¼ per cent, \$25,000; Natoma Water and M. Co., 1 per cent, \$3,000; Chollar Potosi, \$5 per share, \$140,000; Eureka, \$10, \$40,000; Golden Rule, 50 cents, \$1,500; Hale and Norcross, \$5, \$40,000; Meadow Valley, \$1.50, \$90,000; North Star, \$2, \$6,000; Sierra Nevada, \$1, 15,000. Total December, 1870, \$360,500; 1868, \$184,000; 1867, \$221,000.

We compile from the *Bulletin* the following dividends paid by mining companies in this city during this year 1870.

1. Amador.....	\$155,400
2. Argenta.....	21,000
3. Black Diamond Coal.....	300,000
4. Chollar Potosi.....	658,000
5. Eureka.....	430,000
6. Golden Chariot.....	75,000
7. Golden Rule.....	3,000
8. Gould & Curry.....	48,000
9. Hale & Norcross.....	504,000
10. Ida Elmore.....	20,000
11. Kentuck.....	30,000
12. Meadow Valley.....	150,000
13. Metropolitan Mill.....	10,000
14. Natoma Water and M.....	6,000
15. North Star.....	16,500
16. Original Hidden Treasure.....	32,000
17. Sierra Nevada.....	37,500
18. Union.....	30,000
19. Wheeler.....	6,000

Total.....	\$2,532,400
Other City Incorporations.....	5,641,002
	\$8,173,402

"If to this amount were added the net profits of the private and foreign banks of the city and the returns to stockholders of other local incorporations, we have no doubt that the grand total would reach \$10,000,000, which speaks well for the prosperity of these several institutions for the year 1870."

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

	BID. ASKED.		BID. ASKED.
Alpha Cons.....	—	Ida Elmore.....	10 11
Amador.....	292½	Imperial.....	18½ 19
Belcher.....	7½	Kentuck.....	34 34½
Chollar-Potosi.....	74	Occidental.....	— 1
Crown Point.....	18½	Ophir.....	3½ 3½
Daney.....	3	Orig. Hid. Treas.....	2½ 3
Empire Mill.....	—	Overman.....	2½ 2½
Eureka.....	370	Savage.....	55½ 56
Golden Chariot.....	65	Silver Wave.....	½ ½
Gould & Curry.....	45	Sierra Nevada.....	18½ —
Hale-Norcross.....	103	Yellow ket.....	42½ 42½

AGRICULTURAL INDUSTRY

Cotton Culture in California.—No. 1.

BY JOHN L. STRONG.
[Written for the Press.]

It is difficult to define the precise limits within which cotton may be successfully produced in California. With reference to climate, the isothermal lines may be taken as safe latitudinal boundaries.

Reference to a physical atlas will disclose the fact that nearly the entire state lies within the cotton zone. At latitude 36° the isothermal line of 60°—which is assumed as the northern boundary of the "cotton belt" of the United States—curves northward. Following the western slope of the Sierra Nevada, it extends beyond the 40th parallel at Fort Heath, and then curves downward again following the eastern slope of the Coast Range mountains until it reaches the Santa Barbara islands, where it again turns northward.

Limiting the southern boundary of the "cotton belt" of the United States to the isothermal line of 70°, we descend, in California, to San Diego. The question of profitable production on the vast arid plains embraced in this region must be determined by practical tests in the future. One test made in 1870 on these plains in Merced county, with seed sent from the writer's plantation on the Mississippi river, resulted in a fine yield of cotton; while corn planted beside it perished from the effects of drought. But leaving out these arid plains, there remains an immense area within which corn is now successfully and profitably produced, without irrigation. We may safely assert, that wherever corn can be grown without irrigation, cotton will be a profitable crop, supposing the interval between spring and autumn frosts to be sufficiently long to admit of its maturing. This necessary interval may be stated to lie between the 1st of May and the 15th of October. The October frost is supposed to be a freeze, such as will harden the earth and blight all vegetation—"a killing frost." A light frost, which only causes the leaves to drop and dries up the sap in the stalk, is beneficial to cotton in hastening maturity. On all such land as above described, that will return to the planter a yield of 30 bushels of corn, per acre, he may safely calculate to gather 500 pounds of lint cotton per acre.

The importance of the successful inauguration of cotton production to the future prosperity of California, cannot be over estimated. A stranger, traversing the state, finds labor without employment from the time the grain crop is planted until the harvest begins; and from the close of the harvesting season until planting is resumed. In the intervals which elapse between these two working seasons, an idle population haunts the villages, towns, and cities, and the fruits of idleness are everywhere visible. To the amelioration of the condition of the working classes, the efforts of the wise and good are constantly directed; and he who succeeds in such efforts deserves the benison of his kind. It is said with truth, that "he who causes two blades of grass to grow where but one grew before, is mightier than the conqueror of a city." With how much greater emphasis may it be said of him who calls into existence a great industrial enterprise, profitably employing idle populations, repressing thereby vice and crime, and giving a mighty impetus to the development of the prosperity and wealth of the state. It is in this spirit, and with no meaner purpose than that the writer has sought to introduce the culture of cotton in California. Whether his efforts be successful or not, he claims the merit of unselfish endeavor.

The rules which govern the true and scientific culture of the cotton plant are general, and are, therefore, to a certain extent applicable to all conditions of climate and soil. All general rules are subject to modification. In culture—and especially in that which claims to rest upon a scientific basis—these modifications are determined by the tests of practical experience—the safest of guides. Practical tests develop the peculiarities of climate and soil. Thus while the general principles which govern culture in the moist region of the Mississippi river bottom, are the same as those which must be adopted, in practice, in the dry climate of California, practical experience teaches us that there are special differences in both climate and soil which render necessary changes in the prevailing systems of preparation, planting, and cultivation of that region, in order to insure success in our own.

The true principles of culture in both climates involve a thorough preparation for

planting, by deep breaking and perfect pulverization of the soil. It is rendered necessary by the nature of the cotton plant, which neither climate nor soil can change. Depending for sustenance upon one main or *tap root*, which strikes down deep into the earth in search of nourishment, its downward progress must be unobstructed; else to the extent of that obstruction its perfect development is retarded. But in the climate where the abundant moisture generated by the "Gulf Stream" is diffused, the water in the planting season, often lies upon the surface for two or three days consecutively, even though the soil be broken to the depth of ten inches or more. Hence the necessity for planting upon "raised beds." For the germination of the seed the plant requires a generous warmth.

In our dry climate, on the contrary, the absence of precipitation during the planting season admits of level planting, in fact demands it. While the variable climate of the Atlantic States affords the planter no certain criterion upon which to base his plans for cultivation, we have uniform and changeless seasons. In the one case, there may be alternate floods of rain and parching droughts; in the other a single principle governs your system—that of providing for the absorption of the greatest quantity of moisture and its gradual exhaustion to supply the even development of the plant.

We lay down then, as an inflexible rule for the observance of the California planter—level planting.

The soil should be first broken to the greatest possible depth, then thoroughly harrowed. The land is thus prepared to absorb all the moisture that falls. The soil is made light, loose, and is readily warmed by the sun, and a rapid germination insured when the seed is deposited.

The rows should be "marked off" in spaces. A rule which will apply almost universally is—four feet each way. But this is subject to modification in the case of very strong soils, where the plants should have more distance—say five feet east and west, and three feet north and south. The time for planting will be as early as possible after the latest frosts of spring.

The seed must be deposited in the checks, by hand, from eight to ten seed in each check. The best and simplest method of carrying the seed, is to have the hand or laborer who plants the seed, wear a long apron made of burlaps or some cheap, coarse material, fastened around his neck by a strap. He will gather it over his left arm in the form of an open bag. This will be filled with seed and dropped by the right hand.

For covering the seed so dropped, either of two methods may be adopted. 1st. One hand may follow the sower with a hoe, covering carefully to the depth of from two to three inches, or 2nd. A harrow may be used, constructed as follows: Take a piece of 3 by 4 hard wood, 18 inches in length. Leave space in the center to fit on the stock of a common shovel plow; then fill with ordinary harrow teeth at intervals of one and a half inches. Run this over the rows covering the checks. This ends the work of planting.

BEE SUGAR.—The San Jose beet sugar enterprise is now in a fair way of going into early operation. A large amount of stock has already been taken, and arrangements have been made to procure seed for the spring planting. The enterprise may be considered as fairly inaugurated.

Sacramento has not given up the manufacture of beet-sugar. Machinery has been sent for, and the managers are determined to succeed.

CAREFUL FARMING PAYS.—Charles L. Sharpless is a farmer who carries the precision and exact noting of the counting-room, where he has amassed a great fortune, to the farm; and what he knows is valuable, because he can give his knowledge in figures. For instance, he says he can winter a cow in the best condition and at the greatest profit on this daily ration: Hay, 15 pounds; meal, 8 quarts; carrots, 4 quarts. He feeds about equal meals morning, noon and night. It is doubtful whether anybody has better Jersey cattle than Sharpless.

DOGS—WHAT IT COSTS TO KEEP THEM.—If all that the dogs of this country eat were fed to hogs, it would make \$50,000,000 worth of pork. And these dogs do no good, to say nothing of the 800,000 sheep they kill.

A Troy gardener has raised a grape crop of over 6,000 pounds on a space of less than 1,000 square feet.

California Agricultural Notes.

MORE MULTICAULIS TREES.—Dr. J. Strentzel, of the Alhambra Farm, in Contra Costa county, is planting 2,000 *morus moretti* mulberry trees and 1,500 *multicaulis* cuttings. Mr. John Thorpe, of Placer county, is also planting 2,000 mulberry trees—one-half of the *moretti* variety, and the other half *multicaulis*. A number of the neighbors of Mr. T. are also planting a less number each.

OPTUM CULTURE.—C. W. Reed, the well known orchardist and nursery man of Yolo county, is preparing to enter into opium culture this coming season.

IMPORTED PIG.—Cary & Mitchell, of Colusa, have a little pig which they have just imported from St. Louis, two and a half feet from "tip to tip," which weighs 144 pounds.

COAL OIL FOR "SOAB."—Parties are using oil from the San Fernando oil springs, for the purpose of healing scab in sheep. It is said to be an excellent remedy.

WOOL STATISTICS.—The statistics of the San Francisco wool trade show a receipt of about twenty million pounds here besides what may have been retained for manufacture at the Marysville, Stockton, and other interior mills; and it is estimated that the increase next year will be fully 25 per cent.

BIG THINGS.—The San Diego Union has seen a beet weighing 61 pounds and a sweet potato weighing 17½ pounds, both from the Sweetwater Valley in that neighborhood. The latter was eaten a few days before the notice was made, and found to be mealy and sweet.

HOPS IN OAKLAND.—The Oakland News says that 4,600 pounds of hops, of excellent quality, were raised, the past season, on the Haas place, near the San Leandro bridge. This yield was from cuttings planted last February—the yield being about equal to that of old vines.

R. B. SMITH, Esq., who resides on the west side of the San Joaquin, in Stanislaus county, has already sown over 3,000 acres in wheat, and calculates before the seeding season is over to have in upward of 8,000 acres in grain.

STRAWBERRY PROFITS.—A widow lady, of Santa Cruz, received over \$500 for strawberries grown on half an acre of poorly tended ground last season. The cultivation and care of small fruits might be made both a pleasure and a profit to females in this State, as it already is in many of the Eastern States.

JEROME C. DAVIS, of Yolo county, has been sporting a pair of \$8,000 horses in Washington City. They have beaten 2:30.

A WILD GOOSE, of the "Honker" species, weighing 14 pounds and seven ounces, was shot in Tehama county, Dec. 20th.

GOLD IN THE CRAW.—A mallard duck, shot near Castroville, last week, had several particles of gold in its craw.

THE LOCHER STEAM PLOW AT WORK.—The Chico Enterprise says the Locher steam plow is engaged on the Henshaw ranch, in Hamilton township. Its work is thirty acres per day and ten inches of soil turned up. It is, we are glad to say, a success; and must result in a revolution in this item of agriculture in our county, as well as a handsome fortune to its proprietor.

Eastern Agricultural Notes.

LARGE POULTRY ESTABLISHMENT.—A man in Lowell, (Mass.) has built a poultry establishment capable of containing 3,000 hens.

SINGULAR FARM PRODUCT.—It is said that a farmer in Massachusetts made \$2,000, last year, by selling burdock roots.

It is said that pork will be lower this winter than for the past ten years, as the Western markets will be over-stocked.

WHEAT IN ILLINOIS.—Winter wheat is looking well in Illinois. The quantity sown this fall is much larger than heretofore. The prospect for the coming crop is the finest ever known in that section.

ILLINOIS IS SHIPPING MILK direct to New York City—six car-loads a month—but it is condensed first.

CHEESE MAKER'S CONVENTION.—Two thousand cheesemakers are expected to meet in convention in Utica, N. Y., on the 10th of this month. There will undoubtedly be some valuable talk there. Several prominent dairymen will deliver especial addresses.

POTATOES IN COLORADO.—Colorado seems to lead off in potatoes. A farmer on the Cache, near the new town of Greeley, reports a yield of 248 pounds of tubers from 1½ pounds of the Early Rose. The N. Y. Tribune doubts the report.

BEE SUGAR—A SUGGESTION.

The success of the Beet Sugar Factory in Alameda County is attracting the attention of capitalists and agriculturists in many parts of the state, and already there are companies forming in many localities for the purpose of purchasing land, planting beets and manufacturing sugar therefrom. We are glad to see this. It will be of great benefit to the state in many ways. We shall be glad to assist all such enterprises by disseminating reliable information concerning all departments of the business. We would mention a fact in this connection which shows a degree of wise prudence in the Alvarado Company, and which is at least suggestive to all other companies to be organized for similar purposes. Before purchasing their land and before expending much money anywhere, they sent a quantity of beets produced at or near their contemplated location to Illinois, where their present Superintendent was then engaged in a beet sugar factory, and had them manufactured. Thus they in advance obtained a demonstration that the beets grown at Alvarado were of good quality for sugar making.

Would it not be equally wise and prudent for other companies to avail themselves of the skill of the Superintendent and the machinery of the Alvarado Company to determine the character of the beets grown at their contemplated localities? We would like to see a test made with beets grown on alkaline soil.

ORANGES IN YOLO.—J. W. Snowball, of Knight's Landing, has left at the office of the Yolo Democrat some oranges raised by himself. That paper says: "Mr. Snowball has one tree 12 years old with a hundred oranges glistening upon its branches, and another 10 years old with quite a number; and we are informed that Mr. St. Louis, of the same place, has a thousand oranges now ripening. The question is not what can, but what cannot he raised in this county."

We would remark that we are well acquainted with both Snowball's farm and that of St. Louis, and know that they are no more protected from the north or south winds than are locations generally on the Sacramento River. We also know from personal experience that the orange tree will live and thrive well where the water will kill the peach, plum, apricot, nectarine and cherry. As this is the season for planting trees, the above hints should be read and remembered in connection with the above facts as stated by the Democrat. The orange tree will grow from the seed of any ripe orange as readily as the apple tree will grow from the seed of the apple.

ANNUAL WASTE OF IRON ON A FARM.—A London paper, sometime ago, made a calculation as to the amount of iron wasted in the cultivation of land. On a certain farm of 450 acres, it was found that there was an annual consumption of 4 pounds to the acre. But this was considered too high for the average, on account of special conditions, and the consumption generally was computed as between two and three pounds per acre yearly.

Eggs.—New York, we are told, devours about a million of eggs daily, which is one egg to each inhabitant. For about three cents per inhabitant, this great city deprives the country of three hundred and sixty-five millions of possible chickens yearly. We reflect on this fact every time we pay six bits for a descendent of a rooster.

THE POTATO had about as hard a time as the tobacco plant in its early introduction among European nations. For more than two centuries its use was strongly opposed, until at last Louis XV wore a branch of its flowers in public, and this royal sanction overcame popular prejudice and the consumption of the root became universal in France.

MISCELLANEOUS.

The Census of 1870.

The increase in the population of the United States during the last ten years is less than has been commonly supposed. The increase in our Pacific states, more especially in California, during the last year, has also been less than was expected previously, although it cannot be complained of. We publish the following comparative tables of population from the best sources at our command; and for reference they will be found particularly valuable. The figures have been carefully revised and corrected.

CALIFORNIA.

Counties.	1870.	1860.	Inc.	Dec.
Alameda	24,218	8,925	15,292	
Alameda	686	New Co.	686	
Amador	9,600	10,331		1,333
Butte	11,315	12,107		792
Calaveras	8,896	16,302		7,406
Colusa	6,171	2,274	3,897	
Contra Costa	8,468	5,328	3,140	
Del Norte	2,113	1,992	121	
El Dorado	10,328	20,502		10,236
Fresno	6,336	4,605	1,731	
Humboldt	6,109	2,694	3,415	
Inyo	1,582	New Co	1,582	
Kern	2,335	New Co	2,335	
Klamath	1,678	1,803		125
Lake	2,873	New Co	2,873	
San Francisco	9,889	4,739	5,150	
Los Angeles	15,100	11,336	3,764	
Mariposa	6,776	3,334	3,441	
Mariposa	4,572	6,243		1,671
Mendocino	7,025	3,967	3,058	
Merced	2,810	1,141	1,669	
Monterey	431	New Co	431	
Monterey	9,889	4,739	5,150	
Napa	7,135	6,515	1,540	
Nevada	19,134	16,447	2,687	
Placer	11,376	13,270		1,894
Plumas	4,490	4,361	127	
Sacramento	27,102	24,145	2,957	
San Bernardino	3,934	5,554		1,620
San Diego	4,749	4,236	463	
San Francisco	150,272	65,805	99,467	
San Joaquin	21,064	9,434	11,630	
San Luis Obispo	4,786	1,782	3,004	
San Mateo	6,648	3,214	3,434	
Santa Barbara	7,788	3,545	4,243	
Santa Clara	25,269	11,912	13,357	
Santa Cruz	8,782	4,945	3,837	
Shasta	6,337	11,380		6,052
Shasta	4,191	4,360		169
Siskiyou	6,851	7,629		778
Solano	16,336	7,170	9,226	
Sonoma	19,679	11,867	7,812	
Stanislaus	6,510	2,245	4,265	
Sutter	4,530	3,390	1,160	
Tehama	3,597	4,044		447
Tribute	3,173	5,123		1,952
Tulare	4,544	4,638		94
Tuolumne	8,171	16,229		8,058
Yolo	9,913	4,716	5,197	
Yuba	10,865	13,671		2,806
Total	557,375	380,016	222,792	45,430
Increase				177,359

OREGON.

Counties.	1870	1860	Inc.	Dec.
Baker	2,063		2,063	
Benton	4,537	3,074	1,479	
Clackamas	5,992	3,466	2,526	
Clatsop	1,255	498	757	
Columbus	863	532	331	
Coos	1,638	384	1,254	
Curry	514	393	121	
Douglas	6,154	4,314	1,840	
Grant	2,232		2,232	
Jackson	779	736		418
Josephine	1,204	1,022		
Lano	6,438	4,780	1,658	
Linn	8,717	6,772	1,945	
Marion	9,964	7,088	2,876	
Multnomah	11,513	4,150	7,363	
Polk	4,711	3,625	1,086	
Tillamook	408	95	313	
Umatilla	2,875		2,875	
Union	2,555		2,555	
Wasco	2,480	1,680	800	
Washington	4,260	2,901	1,359	
Yamhill	4,999	3,245	1,754	
Total	90,776	62,464	28,312	418
Increase				38,312

NEVADA.

Counties.	1870	1860	Inc.	Dec.
Churchill	196		196	
Douglas	1,216		1,216	
Elko	3,448		3,448	
Esmeralda	1,553		1,553	
Humboldt	1,916		1,916	
Lander	2,815		2,815	
Lincoln	2,185		2,185	
Lyon	1,840		1,840	
Nye	1,087		1,087	
Ormsby	3,666		3,666	
Pah Uta	765		765	
Roop	133		133	
Sage	11,373		11,373	
Washoe	3,253		3,253	
White Pine	7,190		7,190	
Total	42,636		42,636	6,857
Decrease 1863 to 1870			2,364	
Increase 1860 to 1870			35,779	

* Estimated.

WASHINGTON TERRITORY.

Counties.	1870	1863	1860
Challis	380	285	
Challam	394	270	
Clarke	3,081	2,384	
Cowlitz	730		
Island	626	294	
Jefferson	1,270	531	
King	2,164	427	
Kitsap	847	544	
Klilkist	329	230	
Lewis	389		
Mason	273	162	
Pacific	679	429	
Pierce	1,411	1,115	
Skamania	133	285	
Snahomish	675	77	
Stevens	678	674	
Thurston	2,246	1,507	
Wahkiakum	223	42	
Walla Walla	5,302	1,917	
Whitcom	991	352	
Yakima	409		
Total	23,750	12,906	11,168
Increase 1863 to 1870			11,444
Increase 1860 to 1870			12,582

IDAHO TERRITORY.*

Counties.	1870
Ada	2,600
Alturas	750
Bolce	4,700
Idaho	1,119
Lumbi	1,300
Nez Perce	950
Owyhee	1,735
Oneida	621
Shoshone	500
Total	14,265

* Estimated.

MONTANA TERRITORY.

Counties.	1870
Beaver Head	721
Big Horn	38
Choteau	517
Deer Lodge	4,356
Galatin	1,378
Jefferson	1,337
Lewis and Clark	5,030
Madison	2,864
Meagher	1,387
Missoula	2,553
Total	20,583

UTAH TERRITORY.

Counties.	1870	1860
Beaver	785	
Box Elder	1,608	
Cachoe	2,405	
Davis	2,904	
Iron	1,010	
Junab	672	
Kane	715	
Millard		
Morgan		
Rich		
San Pete	3,815	
Summit	198	
Tooele	1,008	
Utah	8,248	
Wasatch		
Washington		
Weber	3,675	
Total	86,864	39,229
Increase		47,635

ALASKA.

Total population in 1870	12,000
--------------------------	--------

NEW ENGLAND STATES.

Counties.	1870.	1860	Inc.	Dec.
Maine	630,426	528,379	2,147	
New Hampshire	317,916	326,073		8,157
Connecticut	637,998	660,147	77,851	
Massachusetts	1,448,055	1,231,066	216,989	
Rhode Island	217,319	174,620	42,699	
Vermont	333,235	315,098	18,137	
Total	3,484,949	3,135,283	357,323	8,157
Increase				349,666

MIDDLE STATES.

Counties.	1870.	1860	Inc.	Dec.
New York	4,370,346	3,880,736	489,611	
New Jersey	780,000	572,035	107,965	
Pennsylvania	3,800,000	2,906,115	893,885	
Delaware	125,000	112,218	12,782	
Maryland	780,000	687,049	92,951	
Total	9,855,346	8,258,152	1,597,194	
Increase				1,597,194

SOUTHERN STATES.

Counties.	1870.	1860	Inc.	Dec.
West Virginia	447,943	376,742	71,201	
Virginia	1,209,607	1,219,337		9,730
North Carolina	1,072,000	992,622	79,378	
South Carolina	735,000	705,708	31,292	
Georgia	1,185,000	1,057,286	127,714	
Florida	189,995	140,424	49,571	
Alabama	1,002,000	964,201	37,799	
Mississippi	834,190	791,395	42,795	
Louisiana	715,384	709,002	6,382	
Arkansas	486,103	435,450	50,653	
Texas	850,000	604,212	245,788	
Kentucky	1,323,264	1,165,684	157,580	
Tennessee	1,258,326	1,109,801	148,525	
Total	11,308,812	10,359,667	1,058,675	9,730
Increase				1,048,945

WESTERN STATES.

Counties.	1870.	1860	Inc.	Dec.
Ohio	2,652,302	2,339,592	312,710	
Indiana	1,688,162	1,350,498	337,664	
Michigan	1,184,158	749,113	435,045	
Illinois	2,540,216	1,711,951	828,265	
Wisconsin	1,052,166	775,871	276,295	
Minnesota	406,037	172,023	234,014	
Iowa	1,082,933	674,690	408,243	
Missouri	1,714,102	1,132,012	582,090	
Nebraska	353,182	107,206	245,976	
Kansas	116,838	28,461	88,377	
Total	12,844,103	9,041,367	3,802,736	

PACIFIC STATES.

Counties.	1870.	1860	Inc.	Dec.
California	557,375	380,016	177,359	
Nevada	42,636	5,857	35,779	
Oregon	90,776	52,464	38,312	
Total	690,787	439,337	251,450	

TERRITORIES.*

Counties.	1870.	1860.	Inc.	Dec.
Alaska	12,000		12,000	
Arizona				
Colorado				
Dakota				
Idaho	14,265		14,265	
Montana	20,583		20,583	
New Mexico				
Utah	89,864	39,229	47,535	
Washington	23,750	11,168	12,582	
Wyoming				

* We can find only partial returns.

RECAPITULATION.

Counties.	1870.	1860.	Inc.	Dec.
New England States	3,484,949	3,135,283	349,666	
Middle States	9,855,346	8,258,152	1,048,945	
Southern States	11,308,812	10,359,667	1,048,945	
Western States	12,844,103	9,041,367	3,802,736	
Pacific States	690,787	439,337	251,450	
Total	38,183,997	31,134,006	7,049,991	

Chicago has one hundred Protestant churches, two theological seminaries and two Universities, beside the Garret Biblical Institute; and yet its record of crimes places it among the worst cities of its size in the world!

The cows of San Jose have taken to swallowing gold coins of late. The inhabitants rejoice thereat, believing that the breed of golden calves will shortly increase.

Lake Tahoe.

[WRITTEN FOR THE PRESS.]

My wanderings having brought me to this beautiful spot, I have had an opportunity for resting a short time from my labors, and send you a few lines from this mountain lake. I left the rail-road at Truckee Station, at which point I arrived at 3.30 A. M., and thence came by stage to the lake.

Truckee is a famous lumber station. Here is a large number of saw-mills, steadily cutting the logs into proper shapes and sizes, and in quantities sufficient to supply the railroad and many districts along its line. Here a large planing mill has been in successful operation during the past year, and here a San Francisco party is about erecting large smelting works, this position having been chosen in great part on account of the abundance of fuel and the existence of the very best of water privileges.

From Truckee to Tahoe City, a distance of 15 miles, one has a delightful ride in the fine stages of Messrs. Burke and Campbell. The road leads through a pass in the Sierra and follows the windings of the Truckee. At Tahoe City we secure rooms at the excellent Tahoe House, kept by W. B. Lyon, and then wander out to enjoy the fine scenery. Here is one of the grandest of all mountain lakes, stretching out 35 miles in length and fifteen in breadth, and hemmed in by snow-capped heights.

From our host of the Tahoe House we can procure horses for riding or boats for a sail. Embarked on the lake we can visit Carnelian Bay, to seek for agates, or Sugar Pine Point, or the Glenbrook House, or a hundred other delightful localities. Or we can fish with rod and line, or (at night) with spears and torches. Three varieties of trout,—the silver, the speckled, and the black, as they are called,—the white fish, and other kinds, give us delightful sport on the clearest and purest of all waters. The largest fish ever captured in this lake, as far as known, was taken out last year, and weighed 29 pounds. This was sent on to President Grant.

Boats on the Lake—Hot Springs.

There are two schooners on the lake, of about 20 tons each, for pleasure parties. Messrs. Howland and Coy have a small steamer, the "Truckee," for the same purpose. It is 40 feet long, 9 feet beam, and will carry some 50 passengers. The boat was built by A. Rewrick and cost \$2,500. The 15-horse power engine and other machinery was manufactured by Lockhead and Co., of San Francisco. The "Emerald," another small steamer, 46 feet long and 10 feet beam, was sent up to the lake by Ben Holladay. The engine has been taken out, and a new one is to be put in, and everything made complete for next season.

Near the mouth of the Truckee River, I noticed still another steamer being built, which will cost about \$15,000, and which will be the largest on the lake,—100 feet long and 20 feet beam, with a 70-horse engine. This is owned by H. Burk, Esq., and is to be a ferry boat for the transportation of passengers, wagons, etc., to different points on the lake. It is a side-wheel-er, is constructed of the pine timber found in the vicinity, and will be finished next June. The builder is Mr. A. Rewrick.

Mr. W. B. Campbell owns a very pleasant place here known as the Hot Springs, where he is building a fine hotel and cosy cottages for the accommodation of families and parties visiting the lake. He is providing every accommodation, and the hot baths added are quite a feature. With all the improvements, this will be a most delightful place for a summer resort.

There can be no real, complete enjoyment without due attention to bodily comforts. If my notes are mostly concerning the preparations made for the last, they are no less valuable and hardly less interesting than if they were only concerning the natural beauties of the place. Perhaps months of travel may have had something to do with the tone of my letter, making it less romantic and more statistical with regard to the creature comforts. Still I think they will prove acceptable to the reader, although not quite after the general order of such letters.

Lake Donner.

Quite different from Lake Tahoe, yet not less interesting, is Donner Lake. Only 3½ miles long and one mile wide, it still has a peculiar beauty of its own, which causes one to hesitate long before awarding it a second place. Formed by the side and terminal moraines of an old glacier, hemmed in by woods and mountains, with its own natural curiosities and its own historical tragedy, well stocked with fish, and with pleasant hotels, it will ever attract many visitors who seek for the beautiful.

The tragedy which gave name to the lake has been widely told, yet may be new to some of your readers. About a quarter of a mile from the Grant House are still to be seen the indications of a cabin. Here a party of immigrants, from Illinois, were imprisoned by the snow in 1846.

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY..... OEO. H. STROMO
W. B. EWER..... JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTION RATES.

CASH IN ADVANCE:—One year, \$4; six months, \$2.50; single copies, 10 cents; Monthly Series, \$4.50 per annum; Quarterly Series (stiff paper binding) \$5. [On Quarterly series, and papers sent to foreign countries an additional sum must be added for advance postage.]

ADVERTISING RATES.

	1 week.	1 month.	3 months.	1 year.
One-half inch.....	\$ 1 00	\$ 3 00	\$ 6 00	\$ 20 00
One inch.....	2 00	5 00	10 00	36 00
Two inches.....	3 75	7 00	18 00	70 00
Three inches.....	5 25	12 50	27 00	105 00
Four inches.....	6 75	16 00	36 00	140 00
One-fourth column.....	6 00	12 00	25 00	100 00
Half column.....	12 00	20 00	50 00	200 00
Full column.....	20 00	40 00	100 00	400 00

MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates less than one-half the cost of daily publication.

San Francisco:

Saturday Morning, Jan. 7, 1871.

Gold and Legal Tender Rates.

San Francisco, Thursday, Jan. 6, 1871.—Legal Tenders buying @90½; selling @91¼. Gold in New York to-day 110½.

Table of Contents.

Hydraulic Mining Enterprise, Ill.....	1	California and Eastern Agricultural Notes; Eggs; Etc.....	1
Notes on Colusa and Yolo Co., Ill.....	3	Census of 1870.....	7
S. F. Notion.....	3	Lake Tahoe.....	7
Cool Impudence.....	3	Smelting Works—Ore Shipments.....	7
MECHANICAL PROGRESS.....	8	Full List of Patents.....	8
Cotterville Lock; Bessemer Metal; Wire Rope Bridge; Carbonized Fuel; Patent for Gas Variety Molding Machine; Slide Valve; Pneumatic Dispatch; Aerostation; etc.....	2	Notices of Recent Patents 8	
SCIENTIFIC PROGRESS.....	9	Contributions to Cabinet, Ill.....	9
Mud-lumps of the Mississippi; Copper Protocloride; Phosphate of Lime; Slowness of Form Change; Nevada Fossils, etc.....	2	Academy of Sciences.....	9
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Montana, Nevada, New Mexico, Utah.....	5	Monte Cenis Tunnel.....	9
Stock Market.....	5	Ocean Cables.....	9
AGRICULTURAL INDUSTRY.—Cotton Culture in California; Beet Sugar, Oranges.....	5	HOUSEHOLD READING.....	10
		Sunshine; New Bread Fruit Tree; How the Money Goes; Household Receipts; Mechanical Hints, Life Thoughts, Etc.....	10
		Quartz Mills on Coast.....	12
		Bull Run District.....	12
		Great Water Enterprise.....	12
		Monitor Amalgamating Pan.....	12
		Borax.....	12
		Railroad Inauguration.....	12

Notices to Correspondents.

K. P. PLOWMAN, Idaho, asks:—"How much water can be run through an 11-inch pipe, 680 feet long, with a ten-foot pressure? The bend will be 80 feet." We do not understand exactly what is meant by the last sentence. The item of importance in bends is the angle. Leaving this out of consideration, we may use, as sufficiently accurate, the simple formula:

$$(3d)^5 \times h = G^2$$

Here d equals the pipe-diameter in inches; h , the pressure in feet; l , the length in yards; and G the number of gallons discharged per minute. This formula gives us 1,213 gallons (nearly) as our answer, for a straight pipe. But the bend will decrease this result, a sharp angle giving less than an obtuse one.

Greenbacks at Par!

Until February 1st, 1871, parties sending to this office direct for old or new subscription, *strictly in advance*, the sum of \$4 in currency, will receive credit for the Press, for one year. This will *not* apply to payments made otherwise than in advance, or to agents who have travelling expenses to pay and who save to subscribers the expense of remitting.

Send at Once!

Subscribers whose term for the Press expires with this number will greatly oblige by remitting at once, before their names are taken from our printed list.

No PAPER LAST WEEK.—As announced in our paper of December 24th, we made no regular issue of the Press on December 31st, having already completed the two full volumes of 52 numbers, for 1870, on the former date. We are thereby enabled to commence our new volume in the new year, instead of on the 53d Saturday of the old year.

Smelting Works—Ore Shipments.

The erection of smelting works has become quite a mania since our interior mines have commenced producing large amounts of ore proper for treatment in the furnace. Leaving out of account the many places where small works have been put up for local purposes, we find projects agitated, and in some instances carried out, in several large commercial centers, for building works for treating ores derived from a large range of country. Omaha has her furnaces, Chicago, St. Louis, Kansas City and other places propose having theirs, and San Francisco talks of one or two establishments in addition to what she already has.

It is easy to see that many of these projects must fail. Some cities want proper fuel and material; others are not well situated with regard to the mines; and in almost all the instances which we know of, the projectors have no idea of the amount of capital requisite for such an undertaking. There are three prominent requisites which now occur to our mind:—a central location (easy of access from a large number of producing mines, with a market for the products of smelting, with plenty of water, fuel, building material, etc., and with cheap labor); a good experienced metallurgist to conduct the operations; a good financial management and *plenty of capital*.

While the other conditions are readily granted on all sides, the last is apt to be overlooked. Possibly the miner may, on first thoughts, imagine that our insisting particularly on this point, is favoring monopoly. Such a thing is far from our thoughts. We do not deprecate competition in smelting, but we do deprecate starting in without any good prospect of success. We find parties talking of putting up works with capitals varying from \$10,000 to \$50,000. While we might advise this where the furnaces are at the mines and for a limited number, we hold it to be absurd for establishments in large cities which expect to treat ores from many places,—as in San Francisco, Chicago, or the like. We think anyone who examines the case fully, must agree with us. We find a strong backer in the *Colorado Register*, which shows excellent sense in the matter, and which we are here glad to quote. Speaking of a proposition to erect furnaces at Chicago with \$25,000 "to commence with," the editor remarks;—[from this estimate of \$25,000, the Chicago party] "must have inadvertently dropped a nought. \$250,000 would probably make a beginning, and but a beginning, as it will be found where estimates of cost of ground, power, buildings, furnaces, stacks, etc., are made. To put up smelting works in Chicago, to handle 24 tons per day, would so far go through \$250,000 as to leave a very small amount to be invested in ores. This latter item for works of this size and class should not be less than \$200,000 of itself. It is believed that the Boston and Colorado works, at Black Hawk, have not less than \$200,000 constantly locked up in ores and matt, while at present the capacity is but 16 tons per day. This accumulation of ore is necessary here in order to make combinations favorable for cheap smelting. In Chicago the same would be true, with the additional consideration of the distance from the source of supply." Without endorsing the exact figures given above, we believe that our Colorado friend is on the right track.

No smelting works, of the kind we refer to, can expect success, unless they are on a large scale. This is necessary in order to be able to smelt economically (by having a variety of ores on hand), and thus give the miner a fair return for his ore, and to live through dull times and through competition. A dozen small works will merely eat one another up by their rivalry. Such works must be able to treat all sorts of ores, to separate the bullion, etc. They

must be of a capacity sufficient to accommodate a large extent of territory, that the failure of one source of supply will not close them up. To erect and run such works, and not to be crippled by the sums "locked up" in the material on hand, a large capital is requisite. Balbach's works at Newark, New Jersey, have been unable to give our interior miners any sort of satisfaction.

Descending from generalities, we propose saying a few words about the proposed new works in this city. We have already one large establishment, Mr. Selby's, and the question occurs whether we have room for any more. We believe that we have—for at least one *large* establishment; but small ones will do no good. They will only injure for a time the present works, which injury will ultimately fall on the poor miner, who will be obliged to make reparation by getting lower prices hereafter. But we advise any parties desiring to erect furnaces here to put in plenty of capital. How much is required for Mr. Selby's works? No *small* amount, we are ready to guarantee.

Our reasons for believing that other works can flourish here are various. Already we receive large supplies of ore, enough to keep the North Beach furnaces at work, besides exporting considerable amounts. But miners find that it is more profitable to have their ores treated here, on account of the speedier returns, etc. And the greater the smelting facilities in our city, the greater our supply will be. The following table of ore and bullion importations to San Francisco during the last twelve months, over the C. P. R. R. and from the southern country, will be of interest as showing what our supply has been, and how it has increased. We believe that this is the first time any such tables have been published. The columns headed "Interior" give the amounts received over the railroad; those headed "South," the amounts from the southern country:

	ORE.		BULLION.	
	Interior.	South.	Interior.	South.
	tons lbs.	tons lbs.	tons lbs.	tons lbs.
January.....	169 1,060	4 400	....	46 900
February.....	169 1,250	10 200	....	47 1,500
March.....	119 320	10 200	....	47 1,500
April.....	219 300	22 700	57 700	40 700
May.....	308 320	40 1,400	58 400	63 1,500
June.....	268 1,390	20 300	119 200	48 1,600
July.....	523 1,960	4 100	131 600	113 400
August.....	671 190	64 1,400	289 1,900	46 800
September.....	318 110	18 700	144 500	36 600
October.....	797 700	3 200	85 1,000	137 1,400
November.....	750 900	48 1,500	425 1,300	....
December.....	382 600	2 600	323 1,200	118 600
Totals.....	4,537 600	247 1,500	1,681 700	724 300

Average, per month: Ore, 398 tons 1,508 lbs; Bullion, 200 tons 916½ lbs.

If we calculate that there are 300 working days, for smelting works, in the year (which number is in excess of the reality) we have an average of nearly 18 tons of ore and over 8 tons in bullion per working day, for the year. But this average does not give a fair representation of the existing state of affairs, for the smaller shipments at the beginning of the year bring down the average. A fairer idea will be given by taking the average of the four quarters of the year, with 75 working days in each quarter. We have then—

	ORE.	BULLION.
	5 tons 1,238 lbs.	2 tons 465 lbs.
Jan. to Mar.....	11 " 1,445 "	5 " 337 "
April to June.....	20 " 54 "	19 " 304 "
July to Sept.....	26 " 912 "	14 " 1,111 "
Oct. to Dec.....	26 " 912 "	14 " 1,111 "

The circumstance of the most interest and importance connected with these figures is the increase. That this increase has been due in great measure to our present smelting works cannot be doubted, and it is reasonable to suppose, as before remarked, that increased facilities will bring still greater supplies.

We cannot pursue the subject further at present. Our figures furnish data for those making calculations on the subject of establishing smelting works here. These figures are not over the true ones, and may be somewhat under them, but yet can not be far from the truth, being taken from the best authorities.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING DECEMBER 20TH.

HYDRAULIC MINING APPARATUS.—Frank H. Fisher, Nevada City, Cal.
HOSE-COUPPLING.—Conrad Locher, Oroville, Cal., assignor to himself and George C. Perkins, same place.
PUMP.—Nathaniel P. Sheldon, San Francisco, Cal.
GRAIN-SCOURER.—Austin Smith, Valmont, Colorado Territory.
EXPLOSIVE COMPOUND.—Joseph Hafenegger, San Francisco, Cal.
GANG-PLOW.—James Harris, San Francisco, Cal.
HANDLE FOR CUTLERY, TOOLS, &c.—John T. Haviland, San Francisco, Cal.
GUN-LOCK.—Edwin B. Hendee, San Francisco, Cal.
VEHICLE.—John D. Ross and Martin Keever Burke, Truckee, Cal.
PIPE AND TUBE FOR WATER AND GAS.—Henry M. Stow, San Francisco, Cal.

FOR THE WEEK ENDING DECEMBER 27TH.

GRAIN-SEPARATOR.—James W. Donaldson, Fairfield, Cal.
DEVICE FOR SIGHTING AND FIRING ORD-NANCE.—George K. Farrington, Alcatraz Island, Cal., assignor to himself, Lorenzo Hubbard, and C. W. M. Smith.
WASHING-MACHINE.—Balaam Chaffian, Lawson, Yolo county Cal.
NEEDLES AND THEIR CARRYING-ARMS FOR SEWING-MACHINES.—George A. Lloyd, San Francisco, Cal., assignor to himself, George W. Smiley, James McMechan, and Anthony Rosenfield.
HAY AND OTHER PRESSES.—Moses V. Northrup, Hornitos, Cal.
SEED-SOWER.—Samuel H. Sheplar, San Francisco, Cal., and William G. Conklin, Portland, Oregon.
PORTABLE SHIELD FOR INFANTRY AND ARTILLERY.—Harde Spears, Snow Hill, Cal.

EXTENSION OF BUSINESS—TWO PAPERS.

The rapidly increasing circulation of the SCIENTIFIC PRESS, and the broad field which it had undertaken to fill, suggested, some months since, to the publishers of that paper the propriety of issuing *two editions*—one for the mining and the other for the farming interests of the Pacific Coast. The success of that enterprise has been beyond our most sanguine anticipations; and now, at the urgent solicitations of numerous friends and correspondents we have determined to give a still greater distinctiveness to our efforts in behalf of these two leading industries of this coast, by advancing the two *editions* to separate and independent journals.

The SCIENTIFIC PRESS will continue, as heretofore, to represent and encourage the Mining Interest, while our Agricultural Industry will be represented and sustained by the PACIFIC RURAL PRESS, the first regular number of which is to-day presented.

The acknowledged advantages already derived from our late system of two separate editions will be greatly enhanced by the issue of two independent journals, and each class of our readers will receive additional benefits; while from the words of encouragement and assurance which we are constantly receiving, we feel the fullest confidence of still larger and more numerous accessions to our list of readers and subscribers than we have been favored with heretofore.

Of course much of the miscellaneous matter which usually appears in the SCIENTIFIC PRESS, is equally appropriate for the PACIFIC RURAL, and will accordingly appear in both journals, for we shall not be able to find anything better. Either paper will be served to subscribers, as they may desire. Both are of the same size and price, and the yearly volumes will commence and expire at the same time; hence

no difficulty or confusion will arise at any time by transferring names from one subscription list to the other.

Many of those who are now forming or are about to commence the forming of clubs for the PACIFIC RURAL PRESS will notice that this arrangement may greatly facilitate their efforts, as their lists may include names for both papers.

To this brief preliminary announcement of enlargement of business we will only add that the prospects of the SCIENTIFIC PRESS were never so brilliant as now, and our ratio of increase of subscription never so large, notwithstanding the great depression in business which has so long prevailed.

All who have visited us within the past few months will bear us out in saying our office presents a busy scene in its every department, whether in our Patent, Editorial, Printing or Engraving Rooms. The efforts to keep pace with the increasing demands of business are taxing the energies of the publishers and their various corps of assistants to their utmost. But we are never weary of well doing, and shall still continue, as heretofore, to do all in our power to interest and instruct our readers.

Notes on Contributions to Our Cabinet.

Some three or four weeks ago, a kind friend left on the editor's desk, during his absence, a package of specimens (one marked Julian District and others with merely the names of certain lodes) with the promise to call in again and give further information. As, however, we have since seen nothing of the donor, we have been unable to give a full description of the ores under this head. We wish to mention this fact in this connection, as we sometimes receive specimens with no information as to locality or donor, and for this reason the giver may be disappointed at not seeing them noticed at the proper time. Our friends will please remember to add the locality, name of donor, and other facts, in sending us contributions.

Nos. 510 to 512—Mr. J. W. Thurman, of Howland & Co., ore crushers and samplers of this city, presents us with these specimens. No. 510 is a beautiful specimen of copper ore, from Toano, Copper Cañon, Nevada, and is principally native copper and red oxide of copper. No. 511 is silver ore from the Shamrock mine, East Canon, Nevada, which shows on its face little else than rather decomposed rock (limestone), but which is said to be rich. No. 512 is a fine specimen of petrified pine wood, dug out, far below the surface of the ground, in running a tunnel near Virginia City, Nevada.

No. 513—Comes from Volcano, Amador county, and was presented by Mr. R. E. Thompson. It is one of those boulders of silicified rock, so common in that locality, outside smooth and polished, and internally with cavities, formerly occupied by large crystals of some mineral, now lined with handsome bunches of small quartz crystals which have a rich brown tinge as if from the presence of a little iron oxide. In places the quartz is in banded layers as in jasper. On breaking these boulders open, water is invariably found, we are told, in the cavities. It might lead to highly interesting results to have this "water" analyzed, as the presence of the crystals denotes the presence in solution of substances which by crystallization give us the various forms found. The smoothness of the exterior of the boulders denotes transportation from a distance, and the presence of the water is itself an interesting occurrence.

We have received some fine specimens from C. H. Aron, which will be noticed at our earliest opportunity.

Gear's Variety Molding Machine.

Nature has provided us most bounteously with forest trees of the largest size and of the finest descriptions on this coast. With the raw material furnished so profusely, our lumber trade is taking large proportions, and the working of wood is becoming one of our most important branches of industry. Hence any machine for wood-work which promises well, is of interest to a large class of our readers.

One of the most important of the many new labor-saving machines of this class which have been introduced during the past 15 years, is the Variety Molder, commonly known as the Shaping Machine.

This machine was invented by Nathaniel Gear, and after considerable litigation, was perfected and improved upon by himself and brother, John Gear, of New Haven, Conn. The machines are now built by A. S. & John Gear & Co., at Concord, N. H., who have bought up and consolidated all the patents. The illustration represents the machine with one of the patent feed attachments, which, though a valuable improvement for certain work, is not so generally used. The great value of the machine consists in the combination head (as

These machines are now built in three sizes, to accommodate the various work required of them. Parties interested in their purchase are referred to Messrs. Berry & Place, the agents in this city of the manufacturers, who keep the different sizes on exhibition at their machinery warehouses, 112 and 114 California street, and who doubtless will be pleased to give any further information required.

Academy of Sciences.

Annual Election—Reports.

The annual meeting of the Academy was held on Tuesday. The reports of the Librarian, Treasurer and Director of the Museum were presented, and the President delivered an address on the past and present position and future prospects of the Society. The reports were on the whole of a satisfactory nature. The matter of increased and better accommodations for the collections was spoken of.

The election of officers was the principal business of the evening, and resulted as follows: President, Dr. James P. Blake; Vice-President, Prof. George Davidson; Secretary, Dr. F. Hansom; Corresponding Secretary, H. P. Carleton; Treasurer, Elisha Brooks; Librarian, Dr. J. G. Coop-

The Mont Cenis Tunnel.

After ten years of hard toil under the greatest of difficulties, this mighty undertaking has achieved a grand success. The plan of bringing Italy and France into closer communication by means of a tunnel through the Alps, was suggested by Count Cavour in 1852, and put in shape in 1857; and although the project involved the greatest of engineering obstacles, the work was commenced actively in November, 1860. The Italian entrance is at Bardonnèche, and the French is at Modena, with a distance of over seven and a half miles between the two. The tunnel was to be 19 feet high and 25 feet wide, allowing a double line of railroad tracks. The obstacles arising from the location, (over 4,000 feet above the sea,) from the varying nature of the rock, the difficulty of getting proper drilling machines, the trouble of securing proper ventilation, etc., have seemed at times insurmountable. Twenty-five years were allowed for the completion of the work, and a temporary railroad was built in the meantime over the steep mountain sides. But man's skill and industry have triumphed over natural difficulties, and on the twenty-seventh of December, the parties

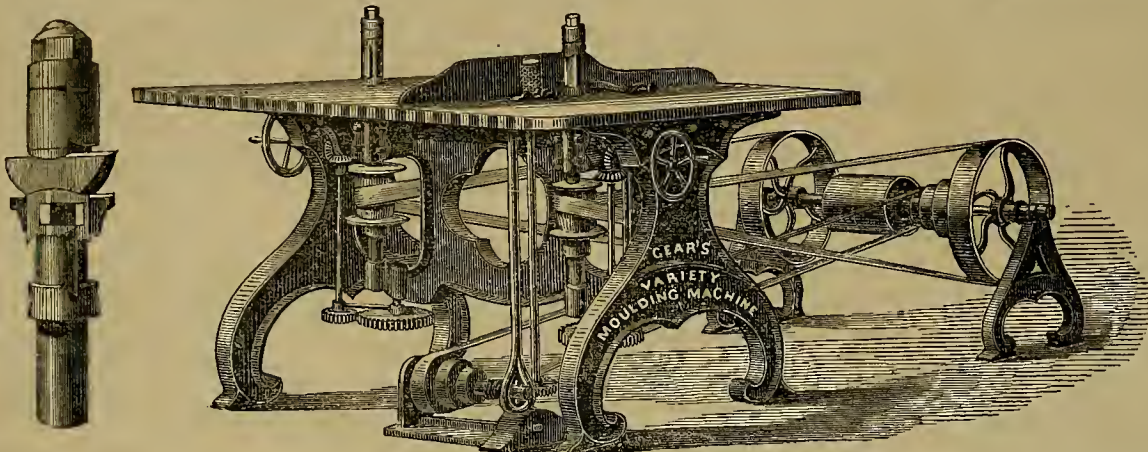
working from the opposite ends of the tunnel finally met, in less than one half the time thought possible previously.

This success will entail most important results. France benefits by this work to a very great extent. Its progress has awakened the jealousy of Prussia, and very probably that nation will now take active measures, as soon as possible, for its proposed tunnel, beneath the St. Gothard. Another tunnel from France, beneath

the Simplon has already been talked of, and we may now expect quite a tunneling furor, —or might, if the present European war were not causing such a tremendous run upon the national treasures.

THE ONLY COMPEND of gas lighting ever projected, is the work of a gentleman of this city. This work is the "Synopsis of British Gas Lighting," shortly to be published, the compilation of Mr. James R. Smedberg, consulting engineer of the S. F. Gas company. Believing that it deserves the hearty support of scientific men generally, as well as that of the gas companies, and feeling assured that it will be most valuable as a work of reference, we again call attention to it. It will be sold only by subscription, and our friends can have their names entered as subscribers by sending \$15 to the compiler.

MUSICAL.—The last series of concerts, given by the S. F. Musical Institute, must be pronounced remarkably successful. The excellent performances of Mr. Schmidt on the violin, the careful, accurate, clean playing of Fraulein Hoffmann, the singing of Mrs. Marriner (surer and better even than usual), the fine quartettes and quintettes, and the selections, as a general thing, have never been excelled before at any concerts which we have attended on the coast. Usually conservative in our laudation of such matters, we have no hesitation in bestowing praise here. We are glad to learn that this series was sufficiently successful pecuniarily to warrant the undertaking of another series, two of chamber music and two with a large orchestra, to commence on the 12th inst. We congratulate the directors for what they have accomplished, and hope that their new subscription lists may be speedily filled. May our musical public sustain them.



GEAR'S VARIETY MOLDING MACHINE.

shown on the left of the engraving), which is the foundation of the Gear patent, and without which the machine would be comparatively worthless. No other machine has this head or the intermediate collars which go with it.

To a practical mechanic the machine will be readily understood from the cut, and will need no explanation. We will simply state, then, some of the advantages claimed for the "Gear Shaper."

The cutters are held firmly in a simple manner, without the use of keys, wedges, screws or any other device than the ends of the knives and grooves into which they fit, and can be taken out, sharpened and replaced in one-eighth the time required to change cutters in other machines. Any length of cutters can be placed in the head, throwing the molding upon any part of the piece to be cut. Less time is required to set and adapt the cutters and heads to the desired forms, by the new and ingenious method of raising and falling the arbors. The cutter head is stronger than any other machine made, and the cutters cannot tremble. Any little vibration of the head does not affect the smoothness of the material planed. It is the only machine where the pattern is guided by the head itself, and if the head yields a little the pattern goes with it. The cutters cost less than cutters used in other machines, and are not weakened by holes and slots.

The shaping machine has revolutionized the business of cabinet making, and is unrivalled for molding furniture of all kinds. It is indispensable in the carriage and car shop, and is so common in all first-class planing mills as to be considered the *sine qua non* of a well regulated wood-working shop.

er; Director of Museum, H. G. Bloomer. Shell Mound—Colorado Desert.

Dr. Blake stated that he had examined a mound of shells at Lafayette, Contra Costa county. This was 18 miles from salt water, was composed of salt water shells, and probably the valley in the vicinity was formerly a salt water bay. A further examination is to be made.

Prof. Davidson quoted Col. Sedgwick to the effect that the elevation of New River, where it enters the Colorado, is 150 feet, up which the Ship of the Desert, lately the topic of so much discussion, must have ascended, if the asserted theory is true. If the ship is, as stated, 250 feet long, it must have a capacity of 2,000 tons.

SAMPLED.—We acknowledge the reception of a sample box of sugar from the Alameda Beet sugar factory, the like of which is now being manufactured at that establishment. We hail it as an evidence of the successful inauguration of a new and important productive industry on this coast. The sample before us is a beautiful article of granulated sugar, white as the driven snow and beautifully crystallized. No better sugar of the kind has ever been seen on this coast.

The product of the pioneer sugar works of California is now before the people of this coast. It is a very superior article, beyond all question, and can be furnished as cheap as that obtained from any other source. Consumers here should give the enterprise a helping hand, by calling for and using home made and home grown sugar, in preference to that of foreign growth. By so doing this business may be encouraged until we shall be able to produce all our own sugar, and thereby save some four millions of dollars that we now send abroad for this important necessity of life.

HOUSEHOLD READING.

Sunshine.

Sunshine is of almost as much importance in gaining or retaining health as good air. Who does not know how much more a bright and sunny day gladdens and invigorates both the strong and the weak than one overcast with clouds? Let the bright sun shine into your dwellings; draw the curtains and swing back the blinds that the sun may dry up the dampness which feeds the mould and fungus that breeds disease; that drives the rose tint from the face and lips. Let the glorious sunshine have free access to every part of your house where it is possible for it to enter. It will bring light and life, and sometimes imparts vigor when all other means fail.

The nations of antiquity seem to have understood and appreciated the blessings of sunlight far more than we moderns do. The most refined of those nations generally held their public meetings in the open air. Their schools were for the most part in groves or in porticoes—colonades, supported upon lofty pillars, beneath which the air and sunlight had the freest access. The magnificent Coliseum of Rome was without a roof. Little is the wonder that many of them, in the simplicity of their understanding, were induced to pay divine honors to the sun, as the source of life, light and heat.

Every lady exhibits wisdom and care in securing all possible available sunshine for her pet plants. She would sooner see them die than linger out a sickly existence in the shade. Sunlight and air are of no less importance to the beautiful, animated flowers of the household, than to the lillies, the geraniums and the fuchsias.

Too little attention is paid to this particular in the construction of our dwellings. Set them so that the sunlight will find its way into the largest possible number of rooms. Rooms upon the northerly side of houses can often be constructed with bay windows, or with recesses, by which a side light can enter, and the room be enlivened and warmed by the sun for a shorter or longer time. An hour's sunshine in a room is well worth arranging for. Secure every ray of the winter's sunshine that is possible, for the little ones and for the infirm and sick, who cannot go out of doors to reach it. Such persons, if kept in rooms with only north windows, will suffer as much from the lack of sunshine, as will plants which are compelled to vegetate in the shade. Let us give not only the feeble ones, but all and every one the fullest measure of sunshine.

HOW WE EAT AND DRINK.—Dr. Dio Lewis, in his "Talks about People's Stomachs," gives the following picture of the way in which too many Americans are in the habit of "bolting" their food at meals, and washing it down with floods of liquids: "Well, then, let me tell you, that during my six years' residence in America I saw nothing which surprised me so much as the way in which the Yankees eat and drink. Why, I really think it is worth an admission to stand at the end of a dining-room and see a hundred Yankees at the dinner table. Each one has something to eat in one hand and something to drink in the other. When the food hand goes up the drink hand comes down, and when the drink hand goes up the food hand comes down. It always reminded me of one of those walking beams on a steamboat—when one end is up the other end is down. Now, sir, I think that is the reason the American people are such dyspeptics. Why, sir, I believe that in a world's exhibition of dyspeptics your country would show more in number, and stronger in quality than all the rest of the world."

DOMESTIC ECONOMY is ascience—a theory of life which all sensible women ought to study and practice. No young lady is fit to be married until she has been thoroughly educated in the deep and profound mysteries of the kitchen. See to it, all ye who are mothers, that your daughters are accomplished by an experimental knowledge of good housekeeping.

A New Bread Fruit Tree.

Dr. Steven, of New York, writes as follows of a Bread Fruit tree which is a native of Brazil, and largely employed by them for food. The Dr. writes:—"The plant resembles very closely our sassafras; it has the same rough bark and the same palmate leaf. The food is derived from the root, and it probably produces a larger amount of food from a given area of ground than any other plant. A yield of 3,000, 4,000 or 5,000 bushels to the acre is not uncommon, and the cultivation is of the roughest kind. In fact, it has no cultivation, except planting. The universal South American knife, the machete, is used to cut a hole in the sod, the plant is inserted, and left to take its chance. It is sure to take its chance however. It will root out all other plants, and cannot itself be destroyed. The root is grated in mills, the milk flows away, and the pulp is dried for food. The milk is wasted by the hoghead. I have seen a river white with it for a long distance below the grating mill. This milk is poisonous, and it contains the saponaceous principle."

The ordinary bread fruit tree of the tropics, as is well known, produces a soft spongy fruit which is generally eaten as plucked from the tree. It may also be sliced and dried, and in that condition kept for quite a long time, and ground or pounded into a kind of flour or coarse meal.

THE TALLOW TREE.—A tree called the tallow tree, grows in China, the fruit of which contains a seed covered with a white, solid, fatty matter, which the natives convert into candles. It is proposed to introduce this tree into South Carolina, the south of France, and Algeria, where there is every prospect of its being successfully cultivated. In China it forms vast forests, and gives rise to a considerable branch of local commerce. The government of British India has introduced it throughout the different regions of the Peninsula, it now being ascertained that it grows equally as well in the Punjab and the north-west provinces as in China. The fatty matter produced by the tree favorably compares with the finest tallow, and when manufactured into candles, burns with a clear, white flame of great brilliancy, and emits neither smoke nor disagreeable odor.

The Way the Money Goes.

New York city spends \$8,500 per day for bread, and \$10,000 a day for cigars. The United States invests \$40,000,000 annually in the cigar trade alone, and \$600,000,000 annually for tobacco in other forms, including expense of producing. The annual expense to the human family is not less, yearly, than \$1,000,000,000. Liquor is sold in the United States amounting, in the year, to \$600,000,000, one-fifth the total amount of the National debt; or, according to Commissioner Wells, the total amount disposed of per annum is \$1,000,000,000, enough to pay the debt in three years.

It is time our wives, mothers and sisters, were alive to the importance of their influence upon this subject, and felt it their sacred duty to use every means in their power to keep this giant monster from ruining, not only the fortunes of many, but the souls and bodies of our best men and women! Only think of the vast amount of money expended in the actual degradation of mankind! And just imagine the suffering, disease, starvation and crime sure to follow the sale of liquor! The Chinese government will not license the sale of opium to its people, knowing its evil effects upon mankind; though a large revenue would accrue to the government by so doing. Would that our government were equally humane to its people. If woman has an influence upon society—and all admit that she has—let it be for its elevation, and let us begin now to make public opinion a temperance one—by voice, by pen and by example.

L. P. J.

ADVERSITY overcome is the brightest glory, and willingly undergone, the greatest virtue.

Household Receipts.

CORN BREAD.—AN ORIGINAL RECEIPT.—To make corn bread equally well without as with eggs was discovered by a California miner who recently communicated the method to us. Our friend occupied a "camp" and of course did his own "cooking." On one occasion finding himself short of meal for his corn bread, he eked it out by mixing therewith a quantity of cold "mush" which had been set aside from a previous meal. His astonishment was great at perceiving the decided improvement the previously cooked meal produced on his "corn bread." He repeated the experiment with the same result, and has since communicated the discovery to many, all of whom are unanimous in pronouncing cooked meal as good as eggs to make corn bread light. Mix liberally, say one third.

GOOD ROLLS.—The famous Parker House rolls are said to be made in the following described manner: Make a hole in two quarts of flour, and pour in one pint of curd milk that has been boiled, with a cup of butter melted in it. Add a quarter of a cup of sugar and half a cup of good yeast. Let it stand without mixing two or three hours. Salt to taste. Then knead it, and set it to rise a few hours; then mold it, and rise again in the pans before baking. The rolls require about fifteen minutes to bake in a quick oven.

SWEET APPLE PICKLES.—Three pounds of sugar, one quart of vinegar, one peck of apples. Dissolve the sugar in the vinegar, steam the apples until tender; let them boil up until clear in the sugar and vinegar. This is very nice for sauce.

TO KEEP MOTHS AWAY.—Take a piece of flannel, wet it with turpentine, and put among your woolen clothes and yarn.

COLD SOAP may be made as follows:—20 pounds of grease, 22 pounds of potash, three-quarters of a pound of rosin.

Mechanical Hints.

TO POLISH MARBLE, ETC.—Marble of any kind, alabaster, any hard stone, or glass may be repolished by rubbing it with a linen cloth dressed with oxide of tin (sold under the name of putty powder). For this purpose a couple or more folds of line should be fastened tight over a piece of wood, mat or otherwise, according to the form of the stone. To repolish a mantel-piece it should be first perfectly cleaned. This is best done by making a paste of lime, soda and water, well wetting the marble, and applying the paste. Then let it remain for a day or so, keeping it moist during the interval. When this paste has been removed the polishing may begin. Chips in the marble should be rubbed out first with emery and water. At every stage of polishing the linen and putty powder must be kept constantly wet. Glass, such as jewelers' show-counter cases, which become scratched, may be polished in the same way.—*Scientific American*.

TO BEND MAHOGANY OR WALNUT MOULDING.—Take two pieces of lumber, one to fit the inside, the other the outside of the moulding (the lumber of course cut to the curves required); soak the moulding in boiling water for ten minutes; then put it between the pieces of lumber; then cramp them together slowly bending the moulding; let it stand for three days; and it will be fit for use.

SPOTS ON MAHOGANY.—Stains and spots may be taken out of mahogany with a little aquafortis or oxalic acid and water, rubbing the part by means of cork, till the color is restored; observing afterwards to wash the wood well with water, and to dry and polish as usual.

WHITE POLISH FOR LIGHT WOODS.—Take white (bleached) shellack, 3 oz.; white gum benzoine, 1 oz.; gum sandarac, $\frac{1}{2}$ oz.; spirits of wine or naphtha, 1 pint, in which to dissolve.

OIL CLOTHS.—To ruin them—clean them with hot water or soap-suds, and leave them half-wiped, and they will look very bright while wet and very dingy and dirty when dry, and soon crack and peel off. But if you wish to preserve them, and have them look new and nice, wash them with soft flannel and luke-warm water, and wipe thoroughly dry. If you want them to look extra nice, after they are dry, drop a few spoonful of milk over them, and rub them with a small dry cloth.—*Western Rural*.

GOLD LIQUID is made by mixing bronze powder with gum water; a little spirits of wine will make it keep better. The proportions are easily ascertained by trial. Pieces of glass are put in the bottle to assist in shaking up the heavy powder, which would settle at the bottom.

Life Thoughts.

He that would have a wife without a fault must remain a bachelor.

When lovers quarrel the only presents not returned are kisses.

The road to ruin is always kept in good repair, and the traveler pays the expenses of it.

He that is good will become better, and he that is bad, worse; for virtue, vice and time, never stop.

Few take care to live well, but many to live long; though it is in everybody's power to do the former.

READING, says Lord Bacon, makes a full man; conversation a ready man; writing an exact man.

Our prayers and God's mercy are like two buckets in a well—when the one ascends, the other descends.

HOSPITALITY.—The Hindus extend their hospitality to their enemies, saying: "The tree does not withdraw its shade even from the woodcutter."

GARMENTS of beauty may cover, but they can never impart worth to abandoned characters.

LOVING hearts are like beggars; they live on what is given them.

He that makes himself an ass, must not take it ill if men ride him.

REFLECT before you act, but, when the time for action arrives, stop thinking.

No snow falls lighter than the snow of age; none heavier, for it never melts.

Don't Cultivate the Mind at the Expense of the Body.

The distinguished Dr. Spurzheim says: "Experience has demonstrated that of any number of children of equal intellectual power, those who receive no particular care in childhood, and who do not learn to read and write until the constitution begins to be consolidated, but who enjoy the benefit of a good physical education, very soon surpass in their studies those who commence earlier, and read numerous books when very young. The mind ought never to be cultivated at the expense of the body; and physical education ought to precede that of the intellect, and then proceed simultaneously with it, without cultivating one faculty to the neglect of others; for health is the base, and instruction the ornament of education."

Beauty an Evidence of Perfection.

Beauty, whether in plants and animals, or in men and women, is the grand external sign of goodness of organization and integrity of function; and the highest possible beauty can indicate nothing less than perfection in these particulars. In the proportion, therefore, that we approach physical perfection, we become beautiful; "the idea of beauty" being, as the learned Dr. Pritchard truly says "synonymous with health, and a perfect organization." Physical goodness (or health) and beauty will always be found to bear a strict relation to each other, the latter being everywhere the sign or symbol of the former. A lack of beauty in any member or system of the body indicates a lack of goodness or health in that member or system. A deformity of limbs shows clearly enough a want of goodness in the locomotive system; a bad complexion not less certainly indicates something wrong in the vital system; and a malformation of the brain, made manifest by the shape of the cranium, is a sure sign of want of balance or symmetry in the mental system.

A GOOD THOUGHT WELL SPOKEN.—No young woman, says a contemporary, ever looks so well to a sensible man as when dressed in plain, neat, modest attire, with but little ornament about her person. She looks then as though she had worth in herself, and needed no artificial rigging to enhance her value. If a young woman would spend as much time improving her mind, training her temper, and cherishing kindness, mercy and other good qualities, as most of them do on extra dress and ornaments to increase their personal charms, she would at least be recognized among a thousand—her character would be read in her countenance.

TRUTHS are at first clouds, then rain, then harvests and food. The philosophy of one century is the common sense of the next. Men are called fools, in one age, for not knowing what they were called fools for averring in the age before. We should so live and labor in our time that what comes to us as seed may go to the next generation as blossom, and that what comes to us as blossom may go to them as fruit. This is what we mean by progress.

(TO BE PUBLISHED SHORTLY.)

'A Synopsis of British Gas Lighting.'

900 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of reference among

Companies,
Manufacturers,
Engineers,
Patenters, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be addressed to the Compiler,

JAMES R. SMEDBERG,
Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

26v21-4f

Oriental Powder Co.,

MANUFACTURERS OF

Blasting,

Mining, and

Sporting Powder,

Of superior strength and cleanliness.

Patent Compound for Blasting and Mining.

Electric Batteries, Fuses, and Leading Wire for Blasting.

Address

A. W. TAYLOR, Agent,
Corinne, Utah.
Send for Circulars. 18v21-lam12t

Devoted Exclusively to American Interests.

THE AMERICAN CHEMIST

EDITED BY

CHAS. F. CHANDLER, Ph. D., and W. H. CHANDLER.

TABLE OF CONTENTS

For September and October, 1870.

Articles:—

On the Analine or Coal-Tar Colors. By W. H. Perkin.
London Gas References and the Sulphur Question.
Electro-Deposition of Copper and Brass upon Iron. By W. H. Wadsworth.
Electro-Coating Iron with Copper and Brass. By W. H. Wadsworth.
The various Qualities of Sugar produced in Cuba, and the Different Modes of Manufacture. By Edward Beanes.
Carbon Photographs. By W. H. Chandler.
On some circumstances which favor the simultaneous precipitation of Aluminum and Magnesia by Ammonia. By Laurence F. J. Winkler.
On estimation of Ferrous Oxide in Presence of Ferric Oxide in Siliceous Minerals. By Charles A. Wilbur and Walter Whitteley.
The Nineteenth Meeting of the American Association for the Advancement of Science.
On the Temperature and Heating Powers of Flames. By W. M. Watts.
Experiments on the Effect of Alcohol (Ethylic Alcohol) on the Human Body. By E. A. Parkes and Count C. Wollowicz.
Composition and Quality of London Waters.
Dangerous Kerosene. By C. F. Chandler.
Inspection of Milk in Massachusetts.
Chemistry of the Bessemer Process. By Lieut. C. E. Dutcher.
Analysis of a Zinc Ore from Blair Co., Pa. By L. Preston Ashmead.
On the Precipitation of Metals of the Magnesium Group in the Form of Oxalates. By W. Gould Leeson.
Heinrich Gustav Magnus. By A. Oppenheim.
Analysis of Deep Sea Water. By John Hunter.
On Animal Charcoal in its use in Sugar Refining. By Dr. Wallace.
On the Estimation of Peroxide of Manganese in Manganese Ores. By John Pattison.
Assay of Manganese Ores. By Edward Sherer.
Ozone and Sulphurous Acid. By B. W. Gibson.
Determination of Carbon in Steel. By W. D. Herman.
Presence of Potash in Chromate of Lead. By T. L. Phillips.
Concentration of Bisulphide of Carbon. N. V. Wartha.
Determination of Iron in Cast-iron. By C. Meno.
New Method of Heating Stoneware Vessels. By J. A. Coffey.

Chemical Notices:—

From Foreign Sources, comprising 24 compact pages of Critical Notes on upward of 350 Chemical Papers which have been published in the last two months.
Recent Chemical Patents.
Brevities.
Books Received.
Answers to Correspondents.
Questions from Correspondents.
Everything of value in the English Chemical News is reprinted verbatim for the benefit of our readers.

Single Copies 50 cents. Subscription per Annum \$5 in advance.

SEND FOR SPECIMEN NUMBER.

WILLIAM BALDWIN & CO., Publishers,
11v20-lam3t 344Broome Street, N. Y.

From G. F. J. COLEMAN, of Dental Surgery, Newark, N. J.—The popular denture known as Sozonox, besides being a very pleasant addition to the toilet, contains ingredients, that if used according to the directions, will prove of the greatest utility to the health of the mouth and teeth.

Business Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, N. Y. York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Farmers and Mechanics

BANK OF SAVINGS,
No. 225 Sansone Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.
OEO. M. CONDEE Cashier. 19v16-3m

GILES D. GRAY. **JAMES M. DAVEN.**
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
SAN FRANCISCO. 27v16

Trades and Manufactures.

WM. BARTLING. **HENRY KIMBALL.**
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
305 Clay street, (southwest cor. Sansome),
18v12-3m SAN FRANCISCO.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Oarratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

THE GIANT

POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16gr

SAN FRANCISCO

CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.

TUBES & CO., Agents,
611 and 613 Front street.

26

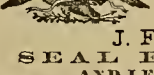
L. SCHUMANN,
PIONEER

Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.



J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

FROM THE WEED Sewing Machine, \$500
The whole world
being judges—the
are the LAST, and
are the BEST! Why?
Because the WEED
Machines
work
better
and
with
more
variety.
LATEST always. Call
and see S. E. Hous, 379
Kearny St. S. F., Att.

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.

All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. 187 No. 10
STEVENS STREET, near First, Pioneer Mills. 25v19-3m

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

P O W D E R ,

For SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the new BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Powder
can be obtained on application to our Office.
16v20-3m **JOHN F. LOHSE, Secretary.**

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS, NEATSFOOT, BOILED AND RAW
LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoc's Illuminating Oil,

PATENT CANS,
414 Front street, San Francisco.

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 31 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v213m

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article
for mending Furniture, Crockery, Glassware, Marble,
Meerscham Pipes, Ornaments, etc.; also splicing
Leather Belting and patching Boots and Shoes. This
Cement possesses extraordinary merit, and is in every
way a first-class article. Every can is its own testimo-
nial. Also, MINERS' RUBBER CEMENT, for mending Rub-
ber Boots, Shoes, Belting, Coats, and Hose without
stitching! Easily applied, never failing, and perfectly
waterproof. Both Cements are put up in TIN CANS ONLY,
with full directions. Take no other. **GIANT CEMENT**
and **MINERS' RUBBER CEMENT** are kept by Druggists and
Dealers throughout the country. Country Dealers can
be supplied by ordering from any house here or in Sacra-
mento with whom they deal, or by sending direct to
us. Send for Agents' Circulars and Price List, to **GIANT**
Cement Manufacturing Co., 419 Washington street, San
Francisco.


MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Travelers' Guide.

Central Pacific Railroad.
Time Schedule, December 5, 1870.

EASTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed.*
San Francisco	Leave	8:00 A. M.	4:00 P. M.	5:30 P. M.
Oakland	"	8:40 A. M.	4:42 P. M.	"
San Jose	"	7:45 A. M.	4:55 P. M.	"
Stockton	"	12:06 P. M.	7:55 P. M.	4:13 A. M.
Sacramento	Arrive	1:50 P. M.	9:30 P. M.	7:40 A. M.
Sacramento	Leave	2:10 P. M.	"	9:00 A. M.
Marysville	Arrive	4:00 P. M.	"	11:15 P. M.
Chico	"	6:15 P. M.	"	5:25 P. M.
Colfax	Leave	5:25 P. M.	"	3:30 P. M.
Reno	"	1:15 A. M.	"	5:45 A. M.
Winnemucca	"	2:40 A. M.	"	10:15 P. M.
Battle Mountain	"	12:00 M.	"	3:10 A. M.
Carlin	"	3:10 P. M.	"	10:00 A. M.
Elko	"	4:40 P. M.	"	12:30 P. M.
Kelton	"	1:35 A. M.	"	7:30 A. M.
Ogden	Arrive	4:10 A. M.	"	4:00 A. M.
WESTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed.*
Ogden	Leave	5:45 P. M.	"	5:00 P. M.
Kelton	"	10:38 P. M.	"	1:35 A. M.
Elko	"	8:45 A. M.	"	7:15 P. M.
Carlin	"	10:15 A. M.	"	10:00 P. M.
Battle Mountain	"	1:25 P. M.	"	3:10 A. M.
Winnemucca	"	4:05 P. M.	"	9:00 A. M.
Reno	"	1:00 A. M.	"	11:10 P. M.
Colfax	"	8:45 A. M.	"	11:30 P. M.
Chico	Leave	6:55 A. M.	"	10:00 A. M.
Marysville	"	9:10 A. M.	"	2:30 P. M.
Sacramento	Arrive	11:25 A. M.	"	5:15 P. M.
Sacramento	Leave	11:45 A. M.	7:00 A. M.	7:30 P. M.
Stockton	"	1:38 P. M.	8:32 M.	11:20 P. M.
San Jose	Arrive	5:35 P. M.	12:00 P. M.	"
Oakland	"	5:15 P. M.	11:50 P. M.	"
San Francisco	"	6:00 P. M.	12:35 P. M.	8:30 A. M.
Through Tickets to all Principal Cities in Europe for sale at the Company's Offices.				
P. M. | A. M.	Local Trains.		A. M. | P. M.	
9:00	9:00	Leave... SAN FRANCISCO... arrive	9:40	7:30
3:28	9:32	... OAKLAND... arrive	9:08	6:55
4:40	11:05	... NILES... arrive	8:15	5:35
5:35	12:00	... SAN JOSE... arrive	7:45	4:35
P. M. | A. M.	Visalia Div.		P. M. | A. M.	
4:00	8:00	Leave... SAN FRANCISCO... arrive	12:35	8:30
7:36	11:48	... LATHROP... arrive	8:50	7:16
9:05	3:25	... MODESTO... arrive	7:15	5:45
P. M. | A. M.	From		P. M. | A. M.	
From	From	From	From	From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.		
B 6:50 A. M.	B 5:55 A. M.	B 5:25 A. M.		
8:00 "	B 6:50 "	B 6:40 "		
9:00 "	8:00 "	B 7:50 "		
D 10:00 "	9:00 "	8:50 "		
D 11:00 "	10:00 "	9:50 "		
D 12:00 P. M.	11:00 "	11:50 "		
D 3:00 "	2:00 P. M.			
4:00 "	3:00 "	2:50 P. M.		
5:15 "	4:00 "			
6:45 "	5:20 "	5:10 "		
B 11:30 P. M.	6:50 P. M.	6:40 P. M.		
From	From	From		
SAN FRANCISCO.	ALBANY.	HAYWARDS.		
B 7:20 A. M.	B 4:42 A. M.	B 3:45 A. M.		
E 9:00 "	B 7:36 "	B 7:00 "		
E 9:30 "	E 8:06 "	E 8:30 "		
E 11:30 "	B 9:36 "	B 9:00 "		
1:30 P. M.	E 11:36 "	E 11:00 "		
4:00 "	1:35 P. M.	3:25 P. M.		
5:30 "	4:05 "			
B Sundays excepted.	E Sundays only.			
D To Oakland only.	C To Fruit Vale only.			
A. N. TOWNE, General Superintendent.				
T. H. GOODMAN, Gen'l Passenger and Ticket Ag't, Sac.				

SHORT ROUTE.



The following time will take effect

Saturday,, October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Calistoga.	Sacramento.	Marysville.
8:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:50 P. M.

ON SUNDAYS.

8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.
------------	-------------	------------	------------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leave <td>Leave<td>Leave<td>Arrives at</td></td></td>	Leave <td>Leave<td>Arrives at</td></td>	Leave <td>Arrives at</td>	Arrives at
Marysville. <td>Calistoga.<td>Sacramento.<td>S. Francisco</td></td></td>	Calistoga. <td>Sacramento.<td>S. Francisco</td></td>	Sacramento. <td>S. Francisco</td>	S. Francisco
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:00 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 513 Montgomery street, or on board
steamer New World. R. S. MATTHEW, Superintendent.
N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
L. C. FOWLER, General Freight and Passenger Agent,
Vallejo October 1, 1870. 13v24-1y

AGENTS WANTED

FOR

Zell's New Encyclopedia.

This work, the Best, the Latest, and the Cheapest ever
published. It is not only a

COMPLETE ENCYCLOPEDIA,
Freshly written, and up with the times, but is also
a thorough and complete

Lexicon, a Gazetteer of the World, a
Biographical, Biblical, Legal
and Medical Dictionary.

And the only book ever published containing all these
subjects, with 2,000 Engravings. This really wonderful
work is to render readily accessible reliable information
on every conceivable subject. No human being could
be found to whom it would not prove invaluable. It
minutely describes every disease flesh is heir to; ex-
plains every legal term or phrase; gives the geography
of the entire world; acquaints you with all noted men
and women living or dead; describes every country, city
and town; defines every word in use in the English lan-
guage; pictures the birth-place and gives portraits of many
distinguished personages; teaches the correct pronun-
ciation of proper names; is a biographical dictionary of
all nations; a biblical dictionary; describes every ani-
mal known to exist; acquaints you with all noted men
and women; warriors, painters, divines, historians,
naturalists, etc., of ancient and modern times; speaks of
all the battles and heroes of the late war; and explores
the whole vast vegetable kingdom.

AGENTS WANTED.—Apply to F. DEWING & CO., 542
California Street, San Francisco, General Agents for the
Pacific States, and Territories. 19v21

Quartz Mills of the Pacific Coast.

Langley's Pacific Directory has hitherto had the reputation of being one of the best authorities for a number of statistics. Its tables of quartz mills, for instance, have been evidently very carefully compiled, and probably give us as correct results as can be obtained. We have gone through these tables in the new volume, and therefrom have compiled the following, which is of considerable statistical value. The number of arastras is not given as complete.

The number of quartz mills in operation in California, January 1st, 1867, was 411, of which 207 were propelled by steam, 186 by water, and 18 by steam and water. The aggregate number of stamps was 4,997, and the cost of machinery was estimated at nearly \$6,000,000. The number, Nov. 1st, 1870, (see following tables) is 421, of which 206 are steam, 198 water, and 17 steam and water. Cost of machinery, \$6,500,000. The number of mills in operation in Montana, in Oct., 1870, was 43, of which 35 are propelled by steam. Aggregate cost of mills and machinery, \$1,100,000. Same for Nevada, 156, of which 125 are steam, 19 water, and 12 steam and water. Estimated cost, \$8,050,000. The following are the condensed tables of quartz mills on the coast.

ARIZONA.	Mills	Stamps	Arastras
CALIFORNIA	9	111	(about) 100
Alphac co.	3	16	..
Amador.	36	579	..
Butte.	13	67	7
Calaveras.	30	338	5
El Dorado.	40	442	3
Fresno.	9	28	4
Inyo.	12	76	4
Kern.	3	12	8
Klamath.	6	162	1
Los Angeles.	2	15	2
Mariposa.	29	416	30
Mono.	2	20	..
Nevada.	79	742	8
Placer.	32	378	13
Plumas.	13	253	3
San Bernardino.	2	4	10
San Diego.	3	14	..
Shasta.	5	36	2
Sierra.	36	321	17
Siskiyou.	6	38	2
Trinity.	1	1	1
Tulare.	2	4	..
Tuolumne.	41	444	13
Yuba.	8	86	..
	421	4,503	132

The aggregate number of mills is stated elsewhere as 421; of stamps, 4,673; besides several hundred arastras, of which 132 are reported.

IDAHO	Mills	Stamps	Arastras
Alturas co.	9	132	3
Boise.	5	69	..
Idaho.	3	20	1
Lemhi.	1	..	..
Owyhee.	12	133	..
	30	344	4

MONTANA	Mills	Stamps	Arastras
Beaver Head.	3	40	..
Deer Lodge.	6	132	..
Jefferson.	4	41	1
Lewis & Clark.	13	166	5
Madison.	16	195	..
Meagher.	1	5	..
	43	629	6

NEVADA	Mills	Stamps	Arastras
Churchill.	1	10	3
Elko.	3	23	..
Esmeralda.	17	225	..
Humboldt.	10	88	..
Lander.	6	65	..
Lincoln.	30	413	8
Lyon.	6	6	..
Nye.	17	200	..
Ormsby.	6	160	..
Storey.	29	443	..
Washoe.	8	155	16
White Pine.	23	269	..
	156	2,130	27

Aggregate number of mills, given elsewhere, 156; of stamps, 2,164.

OREGON	Mills	Stamps	Arastras
Baker.	3	10	2
Grant.	1	8	1
Jackson.	7	24	13
Josephine.	1	10	2
Union.	3	10	1
	15	26	19

GRAND TOTAL.	Mills	Stamps	Arastras
Arizona.	9	111	100
California.	421	4,503	132
Idaho.	30	344	4
Montana.	43	629	6
Nevada.	156	2,130	27
Oregon.	15	26	19
	674	7,788	288
Given elsewhere.	674	7,983	A large No.

SILVER PEAK MINES.—The *Inyo Independent* informs us that J. Ross Browne has been at Silver Peak, examining the mines with a view of interesting English capital. He is represented as expressing favorable opinions as to the property of the Silver Peak Co. He proposes to thoroughly examine the mineral regions of the White Mountains, hereafter.

Bull Run District, Nevada.

[WRITTEN FOR THE PRESS.]

Ens. PRESS:—Everything is progressing satisfactorily here in the different mines which are being worked. There are 10 tunnels now being run to tap various lodes, and 60 men at work who will continue to work all winter. The ores sent to Vance's mill, at Mountain City, for reduction, yielded satisfactorily; some giving as much as \$1,000 per ton. The Johnson Co. are about to start a shaft on their lode. The Sacramento Tunnel Co. are pushing work forward as fast as possible; they are running a tunnel through the main mineral belt of the district, and will cut some 8 or 10 of the leading mines, at a depth of from 50 to 800 feet. Mr. Drew, of Mountain City, is about to remove his 10-stamp mill from that place to here, and will change it to a dry-crusher and add roasting furnaces. He expects to have it running by April next.

The depth of the snow on the mountain is only about three feet. We have had no very cold weather as yet. The amount of ores shipped from this district this summer amounts to 1,723 tons, valued at from \$100 to \$2,000 per ton. If we had had mills here, over 5,000 tons of ores would have been worked during this last summer, of values ranging from \$50 to \$2,000 per ton. According to all appearances, there will be over 20,000 tons of ores taken out of the different mines next year; and if there are facilities for crushing, the bullion shipment will speedily demonstrate the value of the mines in Bull Run.

BULL RUN MINER.

Bull Run, Dec. 19, 1870.

A MONSTER AMALGAMATING PAN.—At the Pacific Co-operative Foundry, Gold Hill, will to-day be completed the largest pan-bottom ever cast in this state. It weighs 8,000 pounds. There is a rim to the pan-bottom, about a foot in height, to which will be added a wooden rim, six feet in height, thus making the pan one of great capacity. The castings for the stirrers and other inside works of the pan, with the bottom, will weigh when complete about nine tons. The pan is to be used in working tailings, and is capable of working 42 tons of tailings per 24 hours. The iron rim which rises above the bottom of the pan to the height of one foot, as noted above, is corrugated internally, in order that the pulp in circling round within the pan may be broken into ripples and whirls and thus kept in that constant state of agitation necessary to the perfect amalgamation of the charge.—*Ter. Enterprise*, Dec. 15.

BORAX.—The Nevada Consolidated Borax Company, which recently incorporated, is going to work in good earnest. Large deposits of crude borax have been found on several lakes and marshes in the State of Nevada, considerable quantities of which have already been received in this city. It is said to yield nearly 35 per cent. of pure borax. Works are being built at North Beach, where the crude article will be rendered fit for market. Foreign borax pays a duty of 10 cents per pound. This Company assert that they can furnish a better article for less money.—*S. F. Bulletin*.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, Jan. 5.

SOLE LEATHER.—The demand is good and the stock on hand light, on account of heavy shipments to the east. Prices rule firm. We quote:

City Tanned.	26	@29
Santa Cruz.	26	@31
Country.	25	@28
CALF AND KIP SKINS.	French stocks continue scarce and high on account of the lack of exportation from French ports which has almost entirely ceased. We quote:	
Best French Calf Skins, 3 doz.	75 00	@100 00
Common French Calf Skins, 3 doz.	35 00	@75 00
French Kips, 3 doz.	1 00	@1 30
California Kip, 3 doz.	60 00	@80 00
California Calf, 3 doz.	1 00	@1 25
Eastern Wheel Stuffed Calf, 3 doz.	1 10	@1 25
Eastern Bench Stuffed Calf, 3 doz.	8 50	@13 00
Sheep Roans for toppling, all colors, 3 doz.	5 50	@10 50
Sheep Roans for linings, 3 doz.	1 75	@5 50
HARNESS LEATHER, 3 doz.	30	@37
Skirting, 3 doz.	4 50	@7 50
Welt Leather, 3 doz.	30 00	@50 00
Buff Leather, 3 doz.	22	@25

A Great Water Enterprise.

The *Butte Record*, of December 24th, gives the following interesting description of the trial of the pipe described in the illustrated article on our first page: On Monday last, water was turned into the large iron pipe to plunge down a depth of 800 feet, and force its way up the same distance to its point of discharge. It was calculated that it would take four hours to fill the pipe so that it would commence to discharge, and it might cause a much less time to cause a break. How anxiously passed the time, as the lower air-valves, by the approaching water, marked its rise by distances of 100 or 200 feet. Three hours have passed since the water was turned in. Confidence and anxiety are depicted upon the faces of those in charge of the work. The huge rubber ball rises in the last air-valve below the mouth of the pipe, and the next indication of the whereabouts of the water must be at the point of discharge into the canal leading into Cherokee, or a giving away of the huge conduit. Forty minutes pass, the huge iron pipe is not again broken, but from its mouth pours a stream, half filling the cavity of the pipe, takes its way into the ditch, around the graceful curve, and rushes down the side hill into the reservoirs commanding the mines of Cherokee. Men shout with great gladness, and, jumping into the receiver, drink from the mouth of the pipe. Then following the water as it flowed through the ditch, and down the slopes of the hill into the reservoir, proclaim with glad voices that Concow Creek is turned into Cherokee, and the great problem is practically demonstrated. Anvils are fired, and impromptu rejoicings are kept up during Monday until Tuesday, when we visited Cherokee to see with our own eye and hear with our own ears. A friend who accompanied us, declared that every other man in Cherokee had his nose skinned. They can well afford to rejoice. For over twenty years the richest mining section in the Golden State has been dependent upon the winter rains for water for mining purposes. Now they have a living stream that shall cause the placers of that section to yield up their hidden treasures at the touch of its magic wand.

A BIG BLAST.—The Marysville *Appeal* gives the following account of the big blast of 25 tons of powder in the hydraulic claim of the Blue Point Mining Company at Sucker Flat, on the 29th ult: The powder was ignited by means of an electric wire, and the explosion that followed is described by those who witnessed it, as a most magnificent sight. The shock was felt throughout the surrounding country, although the report made was heard but a short distance. The earth is described as having been thrown some thirty feet into the air, while for a space 200 feet in length, 150 in width, and 70 in depth, it was entirely broken up, thus meeting the expectations and sanguine hopes of all interested. * * * During the latter part of the previous week two blasts were made on the claims of the Smartsville Consolidated Mining Company, one of which was not entirely successful. In this latter, some 700 kegs of powder was used, and when ignited, but 100 kegs were exploded. This was sufficient to cover up the rest of the powder so that they were obliged to wash away the earth to get at it. In doing this it was wet, so that out of the remaining 600 kegs but about thirty were recovered in good condition, putting them to a loss of about \$6,500. It was expected that they would make another blast on the 30th of about 700 kegs.

USEFUL TABLES.—Messrs. John Taylor & Co., 512 Washington street, have placed on our desk a pamphlet containing a variety of tables of the values of gold and silver per oz. Troy at different degrees of fineness, assay tables, etc., comprising a valuable work for assayers and others. There are also useful remarks on the properties of gold and of silver; and the whole is very "handy to have in the house." Copies will be mailed free to those who desire it, on application as above. The typographical work is so exceedingly neat, that we cannot refrain from a hearty compliment to the printers, Messrs. Spaulding & Barto, 414 Clay street.

PASSENGERS reach Portland, Oregon, in eight and a half days, by rail and stage, from San Francisco.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELIQUENT.	OF SALE.
Altona, G. V., Dec. 2, 50c.	Jan 9—Jan. 30	
Anchor Cons., W. P., Nov. 12, 25c.	Dec. 16—Jan. 4	
Argentina, Nevada, Dec. 17, 50c.	Jan. 19—Feb. 17	
Belcher, G. H., Dec. 2, \$1.	Jan. 19—Jan. 24	
Cherokee Flat, Butte Co., Dec. 8, \$5.	Jan. 9—Jan. 27	
Cons. Virginia, Nevada, Dec. 9, \$1.50.	Jan. 14—Feb. 4	
Imperial, G. H., Nov. 22, \$10.	Dec. 27—Jan. 18	
Maxwell, Amador Co., Dec. 21, \$2.	Feb. 7—Mar. 7	
Meadow Valley Ex., Nev., Dec. 21, 50c.	Jan. 23—Feb. 13	
Nevada, Nevada, Nov. 16, 4c.	Dec. ..—Jan. 7	
North Bloomfield, Nevada Co., Dec. 10, \$2.	Jan. 12—Jan. 29	
Ohio, Virginia City, Nov. 8, \$2.	Dec. 13—Jan. 4	
Overman, G. H., Dec. 8, \$5.50.	Jan. 11—Jan. 30	
Providence, Nevada Co., Nov. 12, \$1.	Dec. 21—Jan. 5	
Seg. Belcher, G. H., Nov. 18, \$1.	Dec. 21—Jan. 5	
Silver Wave, W. P., Dec. 10, \$1.50.	Jan. 11—Feb. 8	
Virginia, W. P., Dec. 17, 50c.	Jan. 23—Feb. 6	
Washington, Mariposa Co., Dec. 12, \$3.	Jan. 16—Feb. 6	
Wheeler, Nevada, Dec. 13, 50c.	Jan. 13, Jan. 30	
MEETINGS TO BE HELD.		
Black Diamond Coal.	Annual Meeting, Jan. 12	
Central.	Annual Meeting, Jan. 3	
Eureka.	Special Meeting, Jan. 3	
Gold Hill.	Annual Meeting, Jan. 9	
Sierra Nevada.	Annual Meeting, Jan. 9	
St. Patrick.	Annual Meeting, Jan. 4	
PAID DIVIDENDS—(Within Three Months).		
Black Diamond, 1/2 per cent.	Payable Dec. 7	
Chollar-Fotosi, \$5.	Payable Dec. 10	
Eureka, div., \$10.	Payable Jan. 5	
Golden Chariot, div., \$14.	Payable Jan. 10	
Hale & Norcross, div., \$5.	Payable Dec. 10	
Meadow Valley, \$1.	Payable Dec. 9	
North Star, \$1.50.	Payable Nov. 10	
Sierra Nevada, div., \$1.	Payable Dec. 15	

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, JAN. 6, 1871.	
IRON.—Duty: Pig, \$7 per ton; Railroad, 50c per 100 lbs.; Bar, 1 1/2c per lb.; Sheet, polished, 3c per lb.; common, 1 1/2c per lb.; Plate, 1 1/2c per lb.; Pipe, 1 1/2c per lb.; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, 3 ton.	@ \$35 50
White Pig, 3 ton.	@ 35 00
Refined Bar, bad assortment, 3 lb.	@ 03 00
Refined Bar, good assortment, 3 lb.	@ 04 00
Plater, No. 1 to 4.	@ 04 00
Plate, No. 5 to 9.	@ 04 00
Sheet, No. 10 to 13.	@ 04 00
Sheet, No. 14 to 20.	@ 05 00
Sheet, No. 24 to 27.	@ 05 00
COPPER.—Duty: Sheet, 3 1/2c per lb.; Pig and Bar, 2 1/2c per lb.	
Sheeting, 3 lb.	@ 26 00
Sheeting, Yellow.	@ 20 00
Sheathing, Old Yellow.	@ 10 00
Composition Nails.	@ 21 00
Composition Bolts.	@ 21 00
TIN PLATES.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, IX, 30x.	@ 12 00
Plates, I C Charcoal.	@ 10 00
Roofing Plates.	@ 10 00
Banca Tin, Slabs, 3 lb.	@ 42 00
Sheet, English cast, 3 lb.	@ 45 00
QUICKSILVER, 3 lb.	@ 90 00
LEAD.—Pig, 3 lb.	@ 6 00
Sheet.	@ 9 00
Pipe.	@ 10 11
Bar.	@ 8 00
ZINC.—Sheets, 3 lb.	@ 10 11
BORAX.	@ 35 00

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, JANUARY 6, 1871.	
Flour, Extra, 3 bbl.	@ \$5 50
Do. Superfine.	@ 5 00
Corn Meal, 3 100 lbs.	@ 2 25
Wheat, 3 100 lbs.	@ 2 25
Oats, 3 100 lbs.	@ 1 40
Barley, 3 100 lbs.	@ 1 35
Beans, 3 100 lbs.	@ 1 87 1/2
Potatoes, 3 100 lbs.	@ 1 50
Hay, 3 100 lbs.	@ 1 00
Live Oak Wood, 3 cord.	@ 12 00
Beef, extra, dressed, 3 lb.	@ 8 00
Sheep, on foot.	@ 2 00
Hogs, dressed, 3 lb.	@ 6 75
Hogs, dressed, 3 lb.	@ 7 1/2

GROCERIES, ETC.

Sugar, crushed, 3 lb.	@ 14 1/2
Do. Hawaiian.	@ 9 00
Coffee, Costa Rica, 3 lb.	@ 21 1/2
Do. Rio de Janeiro.	@ 19 00
Tes. Japan, 3 lb.	@ 65 00
Do. Green.	@ 60 00
Hawaiian Rice, 3 lb.	@ 10 00
China Rice, 3 lb.	@ 10 00
Coal Oil, 3 gallon.	@ 50 00
Candles, 3 lb.	@ 14 00
Overland Butter, 3 lb.	@ 35 00
Ranch Butter, 3 lb.	@ 35 00
Isthmus Butter, 3 lb.	@ 25 00
Cheese, California, 3 lb.	@ 9 00
Eggs, 3 dozen.	@ 1 40
Ham, 3 lb.	@ 11 1/2
Ham and Bacon, 3 lb.	@ 31 00
Shoulders, 3 lb.	@ 9 00

Retail Prices.

Butter, California, fresh, 3 lb.	@ 65 00
do. packed, 3 lb.	@ 60 00
do. Oregon, 3 lb.	@ 25 00
Cheese, 3 lb.	@ 20 00
Honey, 3 lb.	@ 25 00
Eggs, 3 dozen.	@ 18 00
Ham, 3 lb.	@ 18 00
Ham and Bacon, 3 lb.	@ 22 00
Granberries, 3 gallon.	@ 75 00
Potatoes, 3 lb.	@ 2 00
Potatoes, Sweet, 3 lb.	@ 2 00
Tomatoes, 3 lb.	@ 2 00
Onions, 3 lb.	@ 2 00
Apples, 3 lb.	@ 5 00
Pears, Table, 3 lb.	@ 5 00
Plums, dried, 3 lb.	@ 10 00
Peaches, dried, 3 lb.	@ 10 00
Oranges, 3 dozen.	@ 50 00
Lemons, 3 dozen.	@ 50 00
Chickens, a piece.	@ 75 00
Turkeys, 3 lb.	@ 25 00
Soup, Falo and C. C.	@ 10 00
Soup, Castile, 3 lb.	@ 18 00

RAILROAD INAUGURATION.—We are unable to do more than briefly mention the opening of the S. F. and North Pacific Railroad on last Saturday. This road extends from Donahue, about six miles below Petaluma, on Petaluma Creek, to Santa Rosa, about 22 miles, and has been built by Mr. Peter Donahue, of this city, who has received no assistance except that of county bonds of \$5,000 per mile. Surveys were commenced on August 16th. Mr. R. L. Harris is the Chief Engineer.

THE YALE LOCK.—The ever-increasing expertness of burglars has caused continued improvements in the construction of locks. These are now made of the most complicated construction, yet most of them afford no complete security. We were shown, however, a couple of weeks ago, by Mr. O. V. Gerzabek, Manufacturers' Agent, 563 Market street, a complete assortment of locks which are a great improvement over others known to us. These are the "Yale" locks. The key is no cumbersome article, but light and simple, yet so constructed as to afford an infinite variety of combinations. The serrated edge of the key matches exactly a large number of loose plates in the lock, and unless this correspondence is attained perfectly, the lock cannot be worked. A very slight variation renders the key useless; hence it is almost impossible to pick the lock. The Yale lock is very popular at the East, for use on doors, safes, drawers and the like, and especially in banks, where a perfect device is especially essential. Single and double bank and safe dial locks and prison locks are also to be obtained, the last being a recent invention which has important peculiarities.

ORIGINAL HIDDEN TREASURE.—We learn from good authority that Mr. Clayton, the present able Superintendent of the Hidden Treasure, has sent his resignation to the company. This mine has changed its Superintendents oftener than any mine in this state, which is only attributable to a set of stockjobbers who have control of the mine, and who, it seems, do not wish it to be worked as experience and good sound judgment would dictate, but who are only intent on having good pockets gouged out and worked, and thus run up the stock and manipulate it at their pleasure.—*White Pine News.*

The **SCIENTIFIC PRESS** deserves the support of all Californians, for there is nothing that transpires in connection with Mining, Farming or Mechanics, interesting and useful to the people of this Coast, but finds a place in its columns. As the scientific articles are illustrated, the readers can more readily understand the various subjects which are therein treated. A subscription of \$4 per annum, will ensure it by mail weekly; address Dewey & Co., San Francisco.—*Vallejo Chronicle.*

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the **NEW YORK GALLERY**, Nos. 26 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v18 6m B. F. UOWLAND.

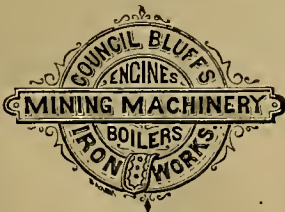
BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 74v19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

MARAVILLA COCOA.—For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, or whom else may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate. St. am Mills—Breck Lane, London. 15v20-y

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Advertisements.



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies, costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Steam Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late Improvements.

Send for prices and information. Address

O. F. HENDRIE, Pres't. R. J. CORY, Secy & Treas. 1v22-3m 4cs Council Bluffs Iowa.

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.

This device is just what its name indicates. As a KITCHEN Tool, it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

Simonds Patent Collar Stud.

Every one who wears a "Butterfly" tie, knows well the vexation incident to fastening the loop of these ties over the common collar stud or shirt buttons. This stud while serving every purpose of the common article makes this task as easy as hanging ones hat on a nail. The loop slips readily into the slotted bulb, and cannot escape by accident, thus preventing the loss of the tie; now so common. They are well plated with gold. It is very seldom that a patent is offered which affords a larger profit than this one. Parties buying the right to a town, county or state, will be furnished with the studs at what they cost to manufacture. A sample will be sent to any one by mail, on the receipt of the retail price, fifty cents.

Improved Construction of Roofs for Tobacco and Fruit Drying Houses.

Persons who are interested in the drying of fruit or tobacco, can fully appreciate this new and useful invention. The object of the invention is to construct the two inclined sides of the roof of a Tobacco or fruit-drying house, so that the sides can be easily and quickly thrown into a vertical position, so as to expose the fruit or tobacco to the drying effects of the sun and air. By the use of this simple device, the labor and expense of handling the tobacco leaves, and changing them upon the racks, is avoided. In California and Oregon, this invention can be used to great advantage in fruit drying. In time of rain the sides of this roof can be almost instantly lowered to protect the fruit from dampness. This invention has been recently patented by M. de K. Cutts, of Richmond, Va., and a full set of drawings, and Letters Patent, can be seen at our office. Here is an opportunity for a profitable investment, as we are authorized to dispose of Rights at very low prices. Full particulars can be obtained from many of our travelling agents, or by calling at our office.

P. Davis' Wire and Picket Fence.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is because the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.



Hay Press.

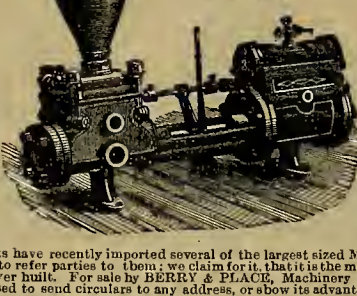
The best and cheapest hay press in the United States. Presses furnished at manufactory cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

WIESTER & CO.,
17 New Montgomery Street, (Grand Hotel), San Francisco.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be used in Houses, Factories, Mills, Laundries, and as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the cheapest and best Pump that can be used. It is offered to the public as the most perfect independent steam Pump ever invented. Forty different sizes are made, capable of throwing from 1000 to 200,000 gallons an hour, and adapted to any class of work that may be required. Every Pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded. The Blake Pump was awarded a silver Medal at the last exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the best steam Pump on exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and for the purpose of raising water from the mines. It is the most simple and durable, and consequently the best Steam Pump ever built. For sale by HERRY & PLACER, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

Hand Power
Lever detached.



LIKE "QUAKER GUNS."—Artificial teeth are of little use and easily detected. Take care of the real ones. All you need is fragrant Sozonox. Use it daily, and your teeth will be the last of nature's gifts to fail you.

"SAULDINO'S GLUE," mends headless dolls and broken cradles.



Pain is supposed to be the lot of us poor mortals, as inevitable as death itself and liable at any time to come upon us. Therefore it is important that remedial agents should be at hand to be used as an emergency, when the seminal principle lodged in the system shall develop itself, and we feel excruciating agonies of pain or the depressing influence of disease. Such a remedial agent exists in the PAIN KILLER, whose fame has made the circuit of the globe. Amid the eternalities of the polar regions or beneath the intolerable and burning sun of the tropics, its virtues are known and appreciated. Under all latitudes, from the one extreme to the other, suffering humanity has found relief from many of its ills by its use. The wide and broad area over which this medicine has spread, attests its value and potency. From a small beginning, the Pain Killer has pushed gradually along, making its own highway, solely by its virtues.

Such unexampled success and popularity has brought others into the field, who have attempted, under similarity of name, to usurp the confidence of the people and turn it to their own selfishness and dishonesty, but their efforts have proved fruitless, while the Pain Killer is still growing in public favor.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroxyline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

R. H. McDONALD & CO.,

WHOLESALE

DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer all their stock at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts, Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices. R. H. McDONALD & CO., 1v22-3mins S. W. Cor. Market and First streets.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the **SCIENTIFIC PRESS**, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December 1870, an assessment of fifty cents per share was levied upon the capital stock, of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 27th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 13th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Secy. Jan7 Office, 37 New Merchants Exchange.

Continental Silver Mining Company—Location of Works, near Hamilton, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company held on the 31st day of December 1870, an assessment of (\$1) one dollar per share was levied upon the capital stock of said Company, payable immediately to the Secretary, at the office of the Company, 302 Montgomery street, San Francisco Cal., in gold coin of the United States.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale by auction, and unless payment shall be made before, will be sold on Wednesday the 22nd day of February, to pay the delinquent assessment, together with costs of advertising, and expense of sale. By order of the Board of Trustees. H. H. BLAKE, Secretary. Office 302 Montgomery Street, San Francisco Cal. Jan7

Shareholders Meeting.

OFFICE EAGLE QUICKSILVER MINING COMPANY. }
San Francisco, January 7th, 1871.

In accordance with a resolution adopted at a meeting of the Trustees of the Eagle Quicksilver Mining Company duly held on the 4th day of January 1871, a special meeting of the shareholders of said Company is hereby called to be held at the office of the Company No. 302 Montgomery street, Room No. 5, San Francisco, California, on Monday the 23rd day of January 1871, at the hour of 2 o'clock P. M., of said day, to elect two Trustees to fill vacancies in the Board, and for the transaction of such other business as may lawfully come before it. 1v22-2mins W. M. H. WATSON, Secretary.

Jennie A. Consolidated Mining Company, White Pine County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 31st day of December 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 27th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Secy. Office, Room 37 New Merchants Exchange, San Francisco, California. Jan7

I. X. L. Gold & Silver Mining Company, Location of Mine Silver Mountain Mining District Alpine County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of Oct. 1870, an assessment of \$1.00 per share was levied upon the capital stock of said Company, payable immediately in United States Gold and Silver coin, to the Secretary at his office Pioneer Hall, 808 Montgomery Street, San Francisco Cal.

Any stock upon which said assessment shall remain unpaid on the seventh day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirty-first day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. O. CROWNEFIELD, Secretary. Office, Pioneer Hall (upstairs) 808 Montgomery street, San Francisco, California.

Nevada Land and Mining Company—Location of Works, Johnson & Latham Antelope and Clifton District, Elko County, State of Nevada.

Notice.—There are delinquent, upon the following described Stock, on account of Assessment levied on the sixteenth day of November, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names	No. Certificate	No. Share	Amount
Henry R. Miller...	(unissued)	2000	\$0 00

And in accordance with law, and an order of the Board of Trustees, made on the sixteenth day of November, 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the Office of the Company Room 5 No. 302 Montgomery street, San Francisco, Cal. on Saturday the 7th day of January 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent Assessment thereon together with costs of advertising and expenses of sale. W. M. H. WATSON, Secretary. Office, Room 5 No. 302 Montgomery St., San Francisco.

Ophir Copper, Silver and Gold Mining Company—Location of Works, Ophir Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the Thirtieth day of December A. D. 1870, an assessment of forty cents per share was levied upon the capital stock of said Company payable immediately, in United States gold coin to the Secretary, at the Company's office, No 314 California St., San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 27th day of Feb. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. DUSH, Secretary. Jan74 Office No. 314 California Street.

St. Patrick Gold Mining Company—Location of works, Ophir District, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December, 1870, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company No. 402 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary. Office, No. 402 Montgomery st., San Francisco.

Washington Mining Company—Location of Works and Mine, Mariposa county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of December 1870, an assessment of \$3 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 206 Front street, San Francisco.

Any stock upon which assessment shall remain unpaid on the 16th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 6th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of the Trustees T. B. WINGARD, Secretary. Office, 206, Front street, San Francisco, California.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, J. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.
24v21-3m

Machinists and Foundries.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-q7

THE RISDON Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon, John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-47

UNION IRON WORKS, Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets.

(4v) SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont Streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO

EUREKA FILE WORKS.

311



Bet. Fremont and Beale,

MISSION ST.,

SAN FRANCISCO.

T. G. DURNING, Superintendent.

New Files of every description made to order. Files re-cut and warranted equal to new. Reaper and Mower sections, bars, etc., made to order at short notice. Orders from the country promptly attended to. 22v22f

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one of the safes, containing Miller & Haley's books and papers, stood the test perfectly,—to whom all interested are referred. This safe is built at the

CALIFORNIA TOOL WORKS,

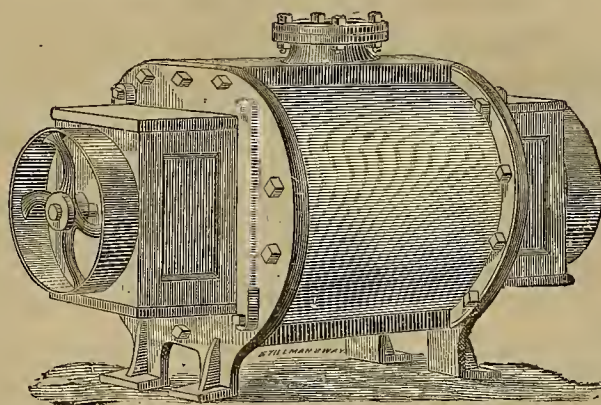
143 Beale Street, bet. Mission and Howard. All kinds of Edge and other Tools made to order. Agricultural machinery repaired. Job grinding and polishing by steam. All work warranted. Orders promptly attended to.
22v22-3m J. WEICHBART, Proprietor.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting,

Foundry,

Mining

and

Steamships.

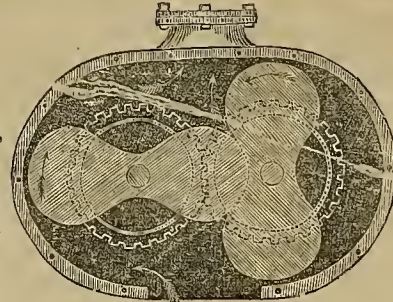
REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.



One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

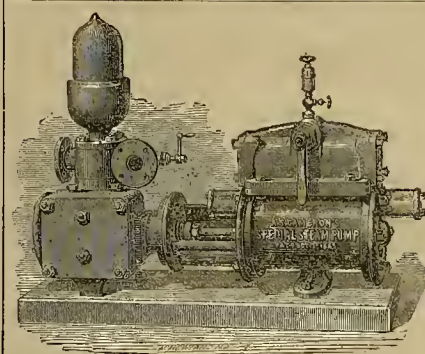
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

4v16-3m

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.



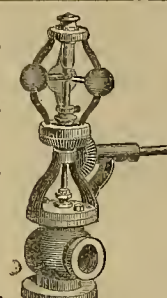
CAMERON'S STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

BARTOL'S
STEAM TRAP.

SURFACE
CONDENSERS.



DAVID STODDART,
114 BEALE STREET.

MILLER & HALEY'S MILLS,

BERRY STREET,

Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, moldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.
19v21-3m MILLER & HALEY.

AGENTS WANTED.

A Magnificent Volume!

INTERESTING! NEW! RELIABLE!

Incident and adventure. History, Fact and Humor.

CUBA WITH PEN AND PENCIL.

About 600 octavo pages, 20 beautiful cuts! 313 illustrations in all, engraved expressly for this work, in the best style, embracing every variety of subject and presenting

A Complete Panorama of the Island.
Many humorous illustrations are introduced to correspond with the many witty and laughable scenes, incidents, descriptions, etc., with which the volume abounds. New style elegant binding. Any one desiring to act as agent, will please apply at once for a circular containing table of contents, and sample of illustrations.
Address, F. DEWING & CO.,
24v21-9t 542 California St., San Francisco.

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a full description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on his coast.—New Transcript.

VICK'S

FLORAL GUIDE

For 1871.

THE FIRST EDITION OF ONE HUNDRED AND FIFTY THOUSAND copies of Vick's Illustrated Catalogue of Seeds and Floral Guide, is published and ready to send out—100 pages, and an Engraving of almost every desirable Flower and Vegetable. It is elegantly printed on fine tinted paper, illustrated with Three Hundred fine Wood Engravings and Two beautiful

COLOR PLATES.

The most beautiful and the most instructive Floral Guide published. A GERMAN EDITION published, in all other respects similar to the English.

Sent free to all my customers of 1870, as rapidly as possible, without application. Sent to all who order them for Ten Cents, which is not half the cost. Address

JAMES VICK,
Rochester, N. Y.

THE

ASPHALTUM PRESSURE PIPE COMPANY,

HAVING ERECTED A MANUFACTORY of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$1. Respt. B. O. B.

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES. 8v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN,
And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,

And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v21g

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superlative tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED, V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 16v19-qy

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 16v16f

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shafts' Tools,
13 and 15 Fremont street, near Market, San Francisco. 16v14qr

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,
Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burt's Solar Compass. 14v21-2m

Metallurgy and Ores.

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
Gold and Silver Ores and Sulphurets bought.
12v28-4y

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.
CHAS. WEST,
No. 139, 3d Street, S. F.
AGENTS—MORRIS & WHITE, 30, Fremont, St. S. F.

NEVADA METALLURGICAL WORKS,
19 and 21 First st., in Golden State Foundry.
RIOTTE & LUCKHART.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay Office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.
26v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE,.....Manager.
J. A. MAIS,.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.
Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.
11v21-3m.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS,
4v16-3m

HENRY G. HANKS,
Assayer and Chemist,
AND DEALER IN
Fins Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.

MANGANESE.
For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per ox. Apply to
J. BLUXOME,
26v21-3m N. E. cor. California & Sansome streets.

Baltimore Copper Company.
Highest Price paid for Copper, Ore, 15 pr. ct.
Regulus, and Bars.

DANIEL MEYER, 210 Pine Street,
23v21-3m SAN FRANCISCO.

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver, or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.
GEO. W. SMILEY,
24v21-3m 424 Montgomery st., San Francisco.

Swamp Land Reclamation.

—THE—
California Peat Company,
OWNERS OF THE
Roberts' Steam Ditching Machine,
are now ready to take contracts. They are prepared to construct
Ditches and Levees.
of any desired dimensions. Terms easy. Address,
J. B. TOWNSEND, 1636 Clay Street.
P. O. Lock Box, 814.
23v21-11m

The Merchants' Exchange Bank

OF SAN FRANCISCO.
Capital, One Million Dollars.
A. N. COLEMAN,.....President.
R. N. VAN BRUNT,.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-4y

YALE LOCKS.
FULL SIZE OF KEY.
BEST & CHEAPEST.

FOR SALE BY THE
HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS,

POST OFFICE LOCK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOOKS,
UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.
OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

Machinery.

The Stetefeldt Furnace.
For information of any description respecting this
process,
APPLY TO
STETEFELDT FURNACE COMPANY.
STETEFELDT FURNACE COMPANY,
Duncan's Building, Room 1, California Street,
14v21-1y San Francisco.

WOODWORTH PLANERS.

Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BARRY & PLACE,
112 and 114 California St., San Francisco.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

SCIENTIFIC PRESS—three numbers—terms \$4 per annum—San Francisco. Constant improvements are being made in this publication. Illustrated mechanically receive liberal attention. Of late, an edition exclusively devoted to agricultural matters is issued simultaneously with that devoted to mining and scientific affairs generally. The growth of the paper and multiplicity of subjects embraced in the table of contents give evidences of an increased patronage and a corresponding industry to maintain its high character—Colorado Herald.

Miners, Look to Your Interests!**SAVE EXPENSE.**

Use the most economical working machinery for crushing your ores.

The Wilson Patent STEAM STAMP MILL

IS AN
IMMENSE SUCCESS.

NO MINER STUDYING HIS INTERESTS WILL USE ANY OTHER MILL.

It costs a great deal less than any other mill and does its work for from twenty-five to fifty per cent. less expense.

The Wilson Steam Stamp Mill
CRUSHES ONE TON PER HOUR

OF THE
HARDEST QUARTZ,
THROUGH THE ORDINARY SCREENS.

One of these mills now being used as custom mill,

AVERAGED,
On Rock from Twenty-two Mines,
Twenty-eight Tons Per Day.

It uses about three cords of wood for twenty-four hours.

Is all complete when it leaves the shop, and weighs about 6,500 pounds, and can be put in operation in one week after it reaches the mines.

THE COST
of this mill all complete, including boiler, pump, setting and everything in complete running order at the mine is

NOT OVER ONE HALF
THE EQUIVALENT
OF ANY OTHER MILL.

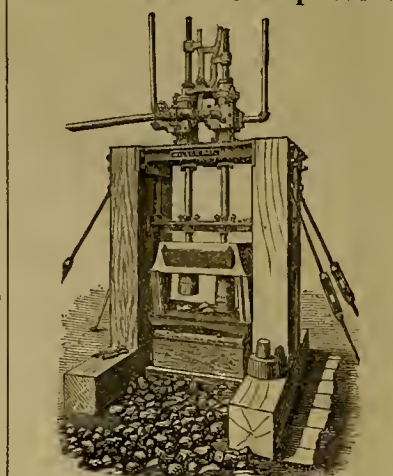
These mills have now been in practical operation for nearly three years, and have proved in point of

Durability, Economy and Efficiency,
TO HAVE
NO EQUAL.

It requires no skill to run them and any one of ordinary abilities can set them up. The success of these mills having been so unprecedented that we now

GUARANTEE THEM
to be all that we claim for them and guarantee all repairs for twelve months.
One of these Mills can be seen at the Pacific Iron Works.

For further particulars address,
FURMAN R. WILSON,
San Francisco.
OR
Wilson Steam Stamp Mill Co.,
326 Walnut street, Phila., Pa.

THE WILSON Patent Steam Stamp Mill.

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquires of

FURMAN R. WILSON,
San Francisco.
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut Street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.
F. R. WILSON,
20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

STEAM JET PUMP.

Blakelock & Williams' Patent, for Water, Oils, Acids, Etc.

The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.
We call the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.
Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Francisco; KEEF & BARGION, Stockton. 21v21-1f

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.
For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.
The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.
Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.
Mill-men are invited to examine these pans and settlers for themselves, at this office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the
San Francisco Plating Works.
655 Mission Street, Between New Montgomery and Third Streets, San Francisco.
E. G. DENNISTON, Proprietor.
HAYLAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold. 20v21-1f

SURVEYOR-GENERAL'S REPORT.—The report of the Surveyor-General of California (John W. Bost), from November 1867 to November, 1869, has been received.

SUCCESS IN BUSINESS.—Success in the business world usually depend upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to **HEALD'S BUSINESS COLLEGE**, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable send for circulars and **HEALD'S COLLEGE JOURNAL**, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22-3ms

FORWARD! FORWARD!
THE
SCIENTIFIC PRESS.
FOR 1871.

WILL BE SPECIALLY DEVOTED TO
Mining, Mechanic Arts, Inventions, and
Home Industries of the Pacific States.
PRINTED ON NEW TYPE,

AND ITS
READING COLUMNS INCREASED,
AND
Otherwise Improved in Value.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement.

CLUBS AT \$3 PER ANNUM
for each name, will be received when ten or more persons co-operate in sending us their club in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the Press until they read it. Use your copy of the paper to induce others to subscribe, (if you like it yourself), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & CO., Publishers.



Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

THE NEW TYPE
ON WHICH
THE SCIENTIFIC PRESS
is printed, is from the
CALIFORNIA TYPE FOUNDRY,
405 and 407 Sansome St.
GEO. L. FAULKNER, Agent.
1v22-3mins

ENGRAVING ON WOOD
DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the **SCIENTIFIC PRESS.** Fine Cuts made for Book and Newspaper illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., to. Prompt execution and reasonable prices.
DEWEY & CO.,
No. 414 Clay street, S. F.

1st Regular No. Ready,
OF THE
PACIFIC RURAL PRESS.

SUBSCRIBE! GET UP CLUBS!

Farmers, Horticulturists, Sericulturists, Stockmen, News dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.
Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO.
Publishers, Patent Agents, and Engravers,
414 Clay Street, S. F.

The Risdon Iron and Locomotive Works,

WATER PIPES,

—FOR—

Cities or Mining Purposes,

CAN BE HAD AT THE

RISDON IRON AND LOCOMOTIVE WORKS,
San Francisco,

They have just completed 70,000 feet of 30 inch pipe, maximum pressure 375 feet, 12,600 feet of 900 feet head; 9000 feet 925 feet head, and 5000 feet of 22 inch pipe 300 feet head.

THE MACHINERY

—FOR—

Shearing, Punching, and Riveting,

—HAS BEEN—

Expressly Designed

for working Iron for pipes, and enables such work to be

Done Cheaper and Better,

than with ordinary machinery.

The Risdon Iron and Locomotive Works.

Are prepared to contract to make and lay pipe of any dimensions, and over depressions of any depth,

GUARANTEEING THE SAME.

The Risdon Iron and Locomotive Works,

Also do all kinds of

Iron Foundry Work, Steam Engines,
Quartz Mills and Mining Machinery.

LOCATION OF WORKS,

S. E. Corner Beale and Howard Streets.

1v22-4elm

THE BEST PAPER

—AND THE—

BEST INDUCEMENTS!

This Quarter's 13 numbers sent FREE to all subscribers before Dec. 25, 1870, for next year's

MOORE'S RURAL NEW-YORKER,

THE GREAT ILLUSTRATED

Rural and Family Weekly.

This is not only the Largest, Best and Cheapest, but by far the Largest-Circulating Journal of its Class! National in Character, Ably Edited, Superbly Illustrated and Printed, it is the

BEST AMERICAN WEEKLY!

It is the standard authority on all branches of Agriculture, Horticulture, &c. As a Literary and Family paper it is a favorite from Canada to California. Indeed Moore's RURAL has no rival in its sphere, and is the largest illustrated Journal on the continent—each number containing sixteen Five-Column Pages, (double the size of most papers of its class).

A NEW FEATURE.

Among recent accessions to the RURAL's unquested Editorial staff is that of HON. T. HART HYATT, of Cal., as editor of the Pacific Coast Department—a new and valuable feature. By prompt mailing and rapid railroad transit, the RURAL now reaches the Pacific slope about the time of its date.

TERMS, INDUCEMENTS, ETC.

TERMS—\$3 a year of 52 Numbers, and only \$2.50 in clubs of ten. This Quarter's 13 numbers sent FREE, as offered above. Our club inducements for 1871 are unprecedented. Specimens, Premium Lists, &c., sent free to all forming clubs,—and we want a live Club Agent in every town. Address

D. D. T. MOORE,
41 Park Row, New York.

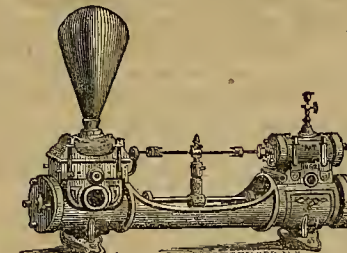
PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
26 Bond street, New York.
Platinum Scrap and Ore purchased. 5v20-1y16p1

Pacific
Insurance Company,
No. 422 California St.,
San Francisco
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. DAIRD, Marine Secretary.

A. L. FISH, Agent.
KNOWLES' PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qs16p

PAPER-BOATS.

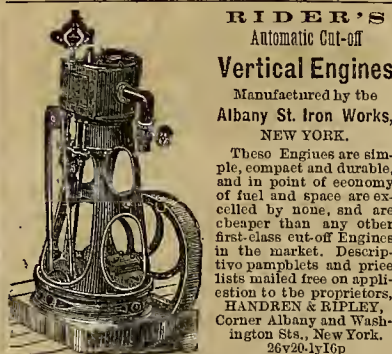
Have been rowed by the winners of NINETEEN races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND CARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada,

besides much other information of interest to carsmen. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address

WATERS, BALCH & CO.,
23v24-3m 303 River Street, Troy, N. Y.

MAGAZINES.	P. An.	
Harper's.....	\$4 00	W. E. LOOMIS,
Atlantic.....		News Dealer
Godey.....		AND STATIONER,
New York Ledger.....		S. E. corner of Sansome and
Blackwood.....		Washington streets,
Hours at Home.....		Washington streets,
Good Words.....	3 00	SUPPLIES ALL
Peterson's.....		Eastern Periodicals,
Arthur.....		BY THE
Lady's Friend.....	5 00	Year, Month, or Number.
Harper's Weekly.....		
Chimney Corner.....		
Literary Album.....	6 00	
London Society.....		
All the Year Round.....	15 00	



RIDER'S
Automatic Cut-off
Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors,
HANDREN & RIPLEY,
Corner Albany and Washington Sts., New York.
26v20-1y16p

1000 Farms

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Ranch," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-5ms

O. J. KING, T. B. KIMBALL, P. D. CODE.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco, 16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hoses and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. **HYDRAULIC PIPES AND NOZZLES** for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,
—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.
MANUFACTURERS OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
23 Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. 1v

PATENTEE'S
Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon. Commissions dependent upon success. Inclose stamp for full information.
References on application. E. E. ROBERTS & CO.,
Consulting Engineers, 15 Wall street, New York.
14v213m16p

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
Orders addressed to **PACIFIC ROLLING MILL COMPANY** Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron 9v143m9p

The patent portable, automatic self-regulating
NEW GAS "MACHINE"

Highest and only Medals and official testimonies awarded the Inventor. Address, N. G. M. Co., 407 California Street, San Francisco. 18v21-3m

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JAN. 14, 1871.

VOLUME XXII.
Number 2.

New Smelting Furnaces — The Piltz Furnace.

[BY GUIDO KESTEL.]

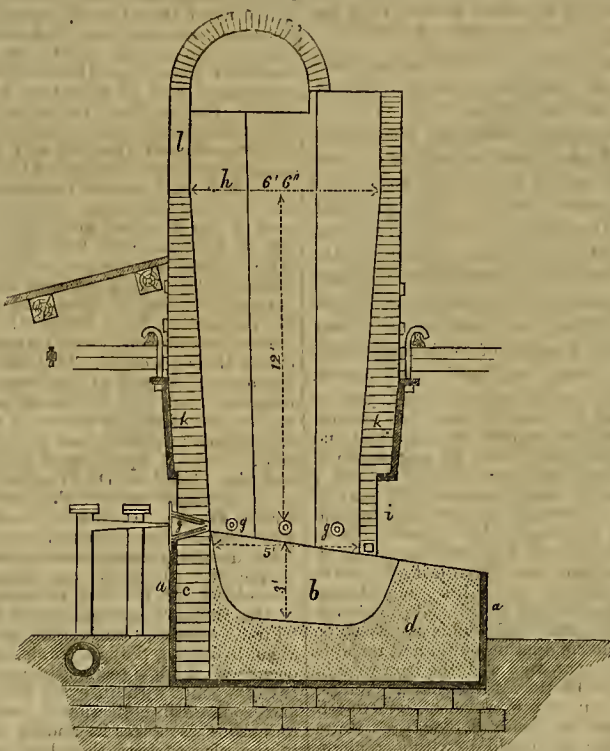
The want of furnaces so constructed as to permit the smelting of larger quantities of ore than hitherto effected with the old styles, led first to the introduction of the "Raschett" system, an arrangement by which the tuyeres, the form of the smelting space being rectangular, are placed in two rows, one of seven or eight on each long side, and are so arranged that the blast of one side strikes between that of the tuyeres of the other side. Fig. 1, which gives a horizontal section of the furnace, explains this. The discharge of metal and slag takes place on the two narrow sides. The smelting result of these furnaces is greatly superior to that of the

by crowbar operations, which usually are frequently necessary in other furnaces on account of clogging up, etc.

Fig. 2 shows a vertical, and Fig. 3 a horizontal section of one of Piltz's furnaces. At *a* is represented a cast-iron box, in which the brick-work, *c*, is placed and the remaining space

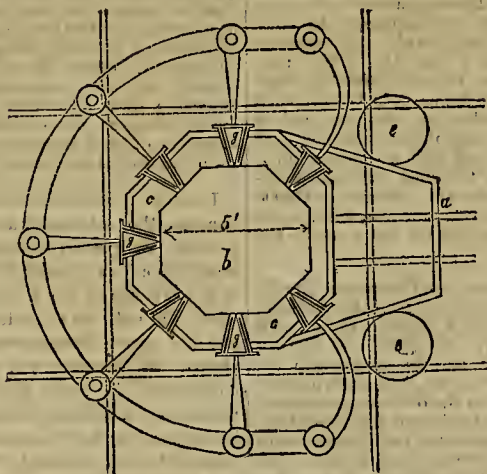
ing the metal into the kettle, *e*. Above the crucible are seven tuyeres, *g*. The distance from *g* to the bottom of the hearth is three feet, and from *g* to the feeding-hole, *l*, ten feet. In case eight tuyeres are used, the last one is placed in front at *i*, a few inches higher than the rest, having at the same time a small incli-

Fig. II

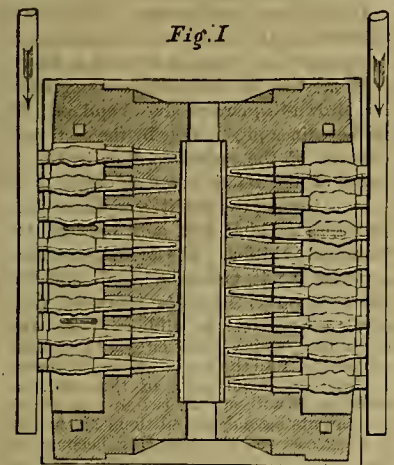


PILTZ FURNACE—VERTICAL SECTION.

Fig. III



PILTZ FURNACE—HORIZONTAL SECTION.



RASCHEFFE FURNACE.

old fashioned ones with one or two tuyeres, not only with reference to the larger quantity of ore smelted, in a given time, but also in saving a greater percentage of metal and fuel. The treatment of such a furnace, however, is delicate, and it required many months running before, by gradual improvement, a long smelting campaign was secured.

It is surprising that the rectangular shape was preferred to a circular one, for instance, one like the old iron-assay furnace of Sefstroom, with blast holes at equal distances on the periphery, the very effective result of which was well known. Mr. Anbel gave an elaborate description of Raschett's furnace, alluding in the same to the circular shape. By theoretical reasoning he tried to prove that a circular form does not admit of a uniform smelting-region, and that the consumption of fuel in the center would be a useless one. Notwithstanding this theory, Mr. Piltz, of Freiberg, Saxony, constructed a circular furnace, 5½ feet in diameter in the clear, and with eight tuyeres, which has proved very successful, and which it is now proposed to describe.

For the sake of greater convenience in building, an eight-sided shape was chosen. The first furnace of this kind was built, if I am not mistaken, about four years ago, at Halsbrucke, near Freiberg. From the start, the result was so favorable and so superior to Raschett's that, with slight modifications in regard to dimensions and number of tuyeres, at this time no other furnaces are in use at Freiberg. Anbel's theory did not prove to be correct. In a properly regulated smelting operation, no so-called "pigs" are formed either in the center or elsewhere; the slag runs continually, undisturbed

beaten out with a composition, varying with the nature of the ore, generally being composed of one part of clay or loam and one part (volume) of charcoal, coke or anthracite, all powdered, mixed and moistened slightly. This composition is beaten in as hard as possible by means of wooden or iron pestles, and either the space is entirely filled and the crucible or receiver, *b*, then cut out, or the crucible is shaped during the stamping. The first method is preferable. There are two, sometimes three, tap-holes, lead-

nation, so as to direct the blast to the same point in the center toward which are directed the other seven, which lie in a horizontal position.

The breast, *i*, rests on a hollow cast-iron pipe, cooled by a constant current of water, as are the tuyeres. The upper part of the wall, *k*, is suspended in a cast-iron mantle. The advantage of this arrangement lies in the convenience and facility with which the fire-bricks above the tuyeres, which are mostly exposed to the action

of heat and of dissolving substances, can be removed and replaced without interfering with the upper part. Being suspended, there is also free access to the furnace from all sides. In place of the "hanging suspension," other furnaces of the kind are provided with three or more iron pillars on which the upper masonry rests. The height above the tuyeres differs often greatly up to 20 feet. The section of the furnace widens always toward the feeding-hole, as this has a beneficial effect on the result of smelting. The force of the blast, finding a larger space in the upper region, is diminished as well as the heat, and the ore dust carried out does not amount to more than one per cent. The feeding aperture is at *l*. The gases, etc., enter dust chambers before escaping through the chimney.

One of these furnaces is attended by one smelter, two slag-wheelers and three men to feed. Ore and fuel are regularly charged. The metal is tapped, from 18 to 20 times in 24 hours, into one of the two or three tap-kettles alternately. The slag runs continually into a slag-pot of cast-iron of a pyramidal shape, the base being up. This cone is 29 inches high and 22 inches in diameter on the top. Matt, or globules of metal sink through the yet liquid slag to the bottom, in case any should be carried out. When stiff, the pot is turned over, the end of the slag-cone (where the metal or matt collects) broken off and melted over with the ore.

The blast, or quantity of wind required, is not very great,—for each nozzle, about 125 cubic feet per minute, or for seven tuyeres 875 cubic feet, at a pressure of one inch quicksilver.

In the year 1868, a Piltz-furnace, 20 feet high, smelted in 28 days:

	Tons.
Lead ores.....	545.00
Pyritic ores.....	50.30
Slag and hearth from cupellation, etc.....	220.35
Slag.....	329.25
Magnetic iron ore.....	61.00
Limestone.....	14.00
Total.....	1,219.90

From these were obtained:

	Tons.
Matt.....	224.00
Lead.....	178.26
Silver.....	1.40
Slag.....	646.50

The slag contained 1.56 per cent. of lead and 0.71 oz. of silver per ton. The above 1,219 tons of smelting material (which are put into the furnace mixed together) consumed 109.8 tons of coke (middling quality), or 9 per cent., while the old Freiberg double-furnaces consumed 14 per cent., and other furnaces 20 per cent. and over.

A LOSS TO THE COAST.—It is now stated authoritatively that Bret Harte is to take up his abode permanently at the East. We can believe that the change may be advantageous to him, in most respects, but to us it will be a grievous loss. He has acquired and maintained here a reputation which is enjoyed but by few literary men, and has thereby raised the Coast in the estimation of the world. We owe very much to him, and it seems a pity that we cannot make it to his advantage to remain with us. Wherever he may be, however, he will have the hearty good wishes of our California public.

ANOTHER STRIKE is reported in the Pennsylvania coal mines; 10,000 men thrown out of employment.

MECHANICAL PROGRESS.

HEAT RADIATION AS AFFECTED BY SURFACE.—In one of his last papers, Prof. Magnus gives experiments made with platinum plates instead of plates easily oxidizable, in order to avoid possible error. He found that "when surface is otherwise the same, inequalities may exist without any increase in the radiation. When, on the contrary, a plain platinum plate which had been heated by a glass-blower's lamp and was quite soft, was roughened by means of fine emery paper the radiation was doubled. When a platinum plate was covered with a thin plate of spongy platinum, by spreading a thin layer of ammonio-chloride of platinum upon it, and then strongly heating; without treatment with nitric acid, it indicated seven times as much radiation as before being treated with spongy platinum. The author concludes that the increase of radiation with a roughened surface depends essentially on the refraction which heat experiences on its emergence from the surface of a radiating body. The greater the refractive index of heat between the radiating substance and the air, the smaller is the radiation from the plane surface, and the quantity of heat reflected inward increases. The metals have doubtless a very high refracting index. Hence they reflect the rays from without and allow but few to penetrate, and hence they reflect internally those coming from the interior, and allow but few to emerge. Great inequalities of radiating surface do not occasion any important alteration in the radiation. Such a one only occurs when the radii of curvature are very small and change greatly, and when the radiating surface has but little diathermancy. In general, the roughness of the surface may effect both an increase and a diminution in the radiation; but if the inequalities are very fine and very deep, there is almost an increase in substances like metals. When there is a very fine powder of the same substance on almost any radiating surface, the radiation is considerably increased."

NEW ARTILLERY.—The "situation" at the present war center has stimulated invention in this direction. The following notes are from the London *Pall Mall Gazette*:—Cail, the noted Parisian mechanical engineer, has produced an armored locomotive, furnished with two powerful mitrailleurs, also protected by armor, originally intended for the railway bridge at Point du Jour, whence it was to throw bullets on to the heights of Moudin. This machine, weighs altogether some six tons. Among other New French inventions are the Marekderberg mitrailleur, throwing 250 balls a minute, and the Montigny, throwing 480, as well as the Durant steam mitrailleur, which discharges no less than 4,500 bullets per minute, and the Faucheur, or "mower" which is said to have a range of 500 to 600 yards, and to cost only 35 francs. In addition to the above, many novel shells have been proposed; among which are the Gaudin fire-bomb, the improved Meustrol shell, bombs emitting suffocating vapors, and others. On the part of the Prussians, Herr Krupp has invented a gun for shooting balloons. This has a carriage and wheels like any other field gun, and can be served by a single man with ease, as it weighs only about 150 pounds. It can be aimed in any direction, horizontal or vertical. The charge consists of a grenade weighing about three pounds, the object of which is to make the balloon explode on its bursting. It is affirmed that a balloon can be struck at a height of 2,000 feet, and that the horizontal range of the gun is five miles. Herr Krupp intends to present 20 of these field pieces to the army, one of which has been already forwarded, and six are about to follow.

RUBBER TIRES WILL NOT PAY.—The following is the closing paragraph of an editorial in the London *Engineering* of Dec. 9th:

"An ordinary eight-horse traction engine costs, say, from 360*l.* to 380*l.*, while an engine rated at the same power, fitted with india-rubber tyres, costs about 600*l.*, and the thing yet to be proved is whether india-rubber is the best investment for this extra 220*l.* or 240*l.*, or whether it could not be more advantageously spent in securing durability in other ways. So many traction engines with india-rubber tyres have now been built and set to work in various parts of the world that it can scarcely be long before data are available which will enable us to estimate such tyres at their

true commercial value; meanwhile we reiterate our opinion that this value will be found less than now appears to be generally supposed. That there are certain special circumstances that may warrant the employment of india-rubber tyres we admit; but that for general purposes they are worth the money they cost, we cannot at present believe."

MOBILITY OF COPPER IN SILVER ALLOY.

—The following is from an editorial in *Engineering* for Dec. 9th on "The manufacture of money":—"In his report, Mr. Roberts refers to certain valuable experiments carried out by M. Levol of the Paris mint to determine the laws which regulate the remarkable mobility of copper in a silver alloy, whereby the homogeneity of the mixture is destroyed, and the proportion of silver and copper varied throughout the mass. Levol found that only one alloy could be found in which copper and silver could be mixed without this movement of particles taking place. This alloy contained 71.893 of silver and 28.107 of copper; but if this proportion was altered, the copper appeared in undue quantity either on the inside or the outside of the cast bar, according as the alloy was richer or poorer. Thus in a cast tube, measuring 42 millimetres on a side, and formed of 77.33 of silver and 22.67 of copper, the centre of the tube had a richness of 78.318 per cent., the outside only 71.015 per cent. while results the reverse of this were observed in alloys poorer than the standard of 71.893 per cent. of silver."

THE LITTLE SYSTEM OF TELEGRAPHY.

—D. H. Craig writes the *Scientific American*, Jan. 1st, that this system is about to be placed before the public of Washington and New York for the transaction of business. He says it is destined to effect a complete revolution in the whole telegraph and postal business of the country; and that there would seem to be no reason why the public should not have 20-word messages telegraphed from one end of the country to the other for ten cents each, provided they will furnish enough of such messages to keep the wires employed. We quote:—"With our system we can work just as rapidly and as correctly over the poorest iron Morse wire, as over the best steel and copper compound wire, in any length of circuit where it is possible to deliver a steady flow of even one-twentieth part of the necessary current to work a Morse machine or a Hughes-Pelphs printer; but of course a compound wire, such as we use on the Washington line, though it adds nothing to the average cost of lines, considering the less number of posts and insulators that are required, really adds nearly three times to the conducting power and tensile strength as compared with the iron wire in general use by the Morse lines. While, therefore, our wire would enable us to telegraph over a circuit two or three times greater than we could do with a common iron Morse wire, the latter would answer our purpose precisely as well as the former in any length of circuit where the iron wire could deliver a steady flow (however slight) of current. Mr. Prescott and other parties who have striven so vigorously to write down automatic telegraphy, have ignored the important fact that Mr. Little uses electricity under entirely different conditions from what it was ever before used by any person who has experimented in fast telegraphy; and it is to this fact, and not at all to the fact that we have a superior line, that we transmit and record correctly 1,000 words per minute, or 60,000 words per hour, over a single wire, equal to the average speed of 100 wires by the Morse system."

THE MCCrackEN GAS PROCESS.—The *N. Y. Gas Light Journal* has seen the working of this process at New Britain, Conn., and reports favorably. We quote:—"The apparatus is simple, and its application requires but little expense, inasmuch as it requires no change in the ordinary settings of the benches. The tar is evidently completely utilized and converted into illuminating gas as fast as it is formed, largely increasing the volume and illuminating power of the gas. The most casual observer cannot fail to notice the high candle power of the gas, and especially the peculiar whiteness of the flame, evidently owing to the excess of olefant gas and possibly acetylene, which it derives from the decomposition of the tar in combination with the superheated steam. We italicise the latter part of the sentence, because it is the great secret of the success of Mr. E. D. McCracken's process—the key to the enigma which all prior experimenters have sought for in vain."

SCIENTIFIC PROGRESS.

DEEP SEA MUD.—Following are some paragraphs from an article in a late number of *Nature*:—"Dr. C. W. Gumbel has recently published an important paper, containing an account of some highly interesting investigations on deep-sea mud. Sir R. Murchison and Professor Huxley provided him with a large quantity of mud, taken up from the Atlantic at lat 29° 36' 54" N., and long 18° 19' 48" W., at a depth of about 2,350 fathoms. This he first cleared, by long-continued washing, from all sea-salts soluble in water; then he divided it, by filtering, into three parts. In the first, Foraminifera and larger organisms predominated; the second consisted of a sediment easily distinguished from the first, fine but heavy; the third was fine and flaky, remaining lightly suspended in water, and consisting almost exclusively of *Bathybius*, *Coccoliths*, *Coccospheres*, together with other organisms of the smallest kind (*Diatoms*, *Radiolaria*, *Spongespicules*, and a very few of the smallest Foraminifera). * * * "The third portion of the deep-sea mud is worthy in a high degree of the interest both of the zoologist and the geologist, whilst it gives scope for many far-reaching theories. If we first analyse it microscopically, the substance, which resembles a white clay mud, resolves itself, apart from the intermingled minutest *Globigerina* and some few other Foraminifera, into a heap of little granules, the so-called *Coccoliths* (*Discoliths* and *Cyatholiths*), and of granulous flaky little lumps, the so-called *Bathybius*, compared with which all other ingredients,—the siliceous-shelled *Diatoms*, and *Radiolaria*, and also perhaps the so-called *Coccospheres* and other small organic bodies excepted,—are of very secondary importance. The part of the deep-sea mud which is made up of *Diatoms* and *Radiolaria*, together with *Spongespicules*, is of especial importance, because it consists to no inconsiderable extent of silica, and appears to be the source from which the siliceous concretions in many chalk formations have drawn their materials. That these form no inconsiderable part of the composition of deep-sea mud may be clearly seen by removing the chalk by means of acids, and the organic matter by heat or by sulphuric acid. * * * Speaking of the *Coccoliths* and the *Bathybius*, Dr. Gumbel says he is in a position to confirm the conclusions of Profs. Huxley, Carpenter, and Haeckel with respect to their organic nature. * * * After detailing some observations, microscopic and chemical, on *Bathybius* and *Coccoliths*, Dr. Gumbel proceeds to speak of the further distribution of the latter. "First," he says, "on looking through the algae, hydroids, polyps, corals, etc., which occur on shallow sea coasts, such as may easily be met with in every botanical and zoological collection, I succeeded in numerous instances in finding *Coccoliths* in the places where they had grown, and not seldom, *Bathybius* at the same time. These investigations were extended to points on the coasts of almost all seas, and now, instead of the statement lately made that the organisms in question thrive only at a depth of 5,000 feet, I am in a position to assert on a proved fact, that *Coccoliths* (*Bathybius*) occur in all seas and at all depths. By their astonishingly wide distribution and their vast numbers, which stamp them as one of the most essential members of rock-forming substances, they gain infinitely in scientific interest."

FRENCH SCIENTISTS STILL ACTIVE.—M. Janssen, the celebrated astronomer, was to join the Eclipse Expedition, leaving Paris in a balloon constructed for his private use at the expense of the French Government, which did not lose a single day, after coming into power, in commencing the preparations. M. Janssen will carry a telescope constructed in eight weeks by Parisian workmen. The French Academy has held its sittings regularly since the commencement of the siege, and the *Comptes Rendus* has been published every week.

RETURN OF THE AMAZON EXPEDITION.—Prof. Fred. C. Hartt and party arrived in New York Dec. 21st from the Valley of the Amazon, which they have been exploring for the six months past. They bring a large collection of geological specimens and fossils, designed for Cornell University. They report further evidence in refutation of the glacial theory of Prof. Agassiz as regards that region.

THE BOSTON MUSEUM.—The *Boston Post* says:—"Since the acquisition of the private collection of Prof. Agassiz, the Boston Museum may claim rank among the foremost institutions of its kind; for although the British Museum in London and the Jardin des Plantes in Paris are on a very much larger scale, yet in certain departments, such as corals and fishes, the Museum of Comparative Zoology is superior to both, while the increase of its collections since its existence, and the prominence it has attained among other museums, are such as no like establishment has reached in the same time and with the same means. In the new building now going up, which adjoins the present Museum and is to be of equal dimensions, it is intended to exhibit all the animals peculiar to the different parts of the world, in such a manner as to impress the observer with their natural association in nature, so that the student shall be able to make himself familiar in one part of the building with the latest result of scientific research in working out the system which binds together the whole animal kingdom as a unit; while in the other part of the building their geographical distribution upon the whole surface of the earth, and their various combinations and associations on different continents will be made apparent. Such a twofold arrangement of collections has never yet been attempted in any museum, not even in the largest and most prominent institutions of the kind in Europe. The fossil remains of past ages will be exhibited in like manner in such an arrangement as to display at the same time their order of succession in geological periods, and their relations to the animals now living. It is intended to complete this plan by exhibiting also the different stages of all known animals, from their earliest period of development in the egg to their adult condition. This is a truly magnificent plan."

HEREDITARY DEFORMITIES.—*Nature* calls attention to Brown-Séquard's experiments on epileptic guinea pigs detailed at the recent meeting of the British Association. Dr. Brown-Séquard produced epileptic fits in the guinea pigs, either by the section of one-half of the spinal cord, or by the division of the sciatic nerve on one or both sides. During the fits it sometimes happens that the hind foot gets between the teeth and is bitten. The animal, on recovery from the fit, tastes the blood, and if it be one in which the sciatic nerve has been divided, proceeds to nibble off the two outer toes, which have entirely lost their sensibility from the operation on the nerve. In breeding from pairs of this kind, the offspring is without the two toes of which the parents have deprived themselves; and in these cases all the offspring become, as they grow up, perfectly epileptic; while in ordinary cases epilepsy is only rarely transmitted hereditarily. Other peculiarities existing in these epileptic guinea pigs were also found to be transmitted to their offspring; and in dissection of the hereditarily malformed animals, a node was found on the sciatic nerve corresponding to that formed after section of the nerve in the parent.

HAECKEL'S NATURAL HISTORY OF CREATION.—We quote the following paragraph from a notice, in *Nature* for Dec. 8th, of the second edition of this work, just issued:—"The remainder of the volume, nearly half, is taken up with a concrete history of creation, i.e. with an account of how, and by what steps, all kinds of plants and animals have grown out of the primordial moners, those first existing living things which were, according to Haeckel, neither plants nor animals, but belonged to a third kingdom of Protists. This part of the work therefore is a descriptive genealogy of all living beings, the pedigree of each kind of creature being made out, or rather conjectured out, as far as present knowledge will allow. In the second edition, as might have been anticipated, the genealogies are very much extended, and given with much greater detail than at first; in particular, there is a new whole chapter on the migration and dispersion of mankind, and on the species and races of men. The results of phylogenetic speculation or inquiry are graphically shown in elaborate genealogical trees; and a new, large plate shows at one glance how all races of men have probably spread from a hypothetical paradise once situate in the great continent of Lemuria, now sunk below the waves of the Indian Ocean."

CORRESPONDENCE.

Bound East.

(WRITTEN FOR THE PRESS.)

Once more I resume my travels, this time with my face turned steadily eastward. Over the Western Pacific to Sacramento, over the Central Pacific to Ogden, I traverse again the regions which I have already described at length in previous letters, and on which I therefore dwell no further in this communication. I received, as ever, the best treatment from the Railroad Company, which rendered the trip one of pleasure.

Ogden to Omaha.

From Ogden I pass over, to me, new ground, and am made the recipient of the hospitality of a new company. I find, however, no diminution in the comfort of the accommodations or the attentiveness of the employees. I have made the acquaintance of several of the officers of the road. I may be permitted to mention the names of the efficient Land Commissioner, Mr. O. F. Davis, and of the Chief Engineer and Superintendent, General T. E. Sickles. Gen. Sickles has succeeded Col. Hammond. He is a genial, pleasant gentleman and an excellent engineer of great experience. Under his management the interests of neither road nor traveler will suffer.

Leaving Ogden we go through the Wahsatch mountains, between them, if you please. The Weber has cut us a passage, and a grand one, in the red sandstone harrier, often exceedingly narrow, but at the same time exceedingly beautiful. The Devil's Gate here has an extensive fame, although the old gentleman is not generally supposed to have a residence near running water. Echo Cañon greets us with its fine scenery, and we then roll on through Wyoming Territory. Allow me here to suggest that you get and publish a map of the railroad for the benefit of your readers.

Immediately on entering Wyoming, we pass Evanston, known to you through its coal deposits, which are said to be of excellent quality. We go by the romantic Church Buttes, pass Fort Steele, and finally get to Laramie, with its curious rocks of red sandstone. At Separation and Carbon we see coal-pits. The deposit at Carbon is nine feet thick, is said to contain good coal, which is, however, very soft, and crumbles easily on exposure. It retains fire long, as shown by the cinders at night. [Our correspondent passed Carbon previous to the occurrence of the fire there. Eds. Press.]

We pass along the line of the Black Hills, where sportsmen delight to stay, I am told, and come to Cheyenne. Here is the branch road south to Denver. By the way, I forgot to notice Sherman, the highest point on the road, 8,250 feet above the sea, passed before we reached Cheyenne. I really was not aware of the important fact as I rode along, until it was too late to appreciate it.

Between Pine Bluffs and Bushnell, we cross the boundary line of Wyoming and come into Nebraska. On a gradual descent we ride on, by Julesburg, of former fame, once rejoicing in the title of "Hell on Wheels," down to the valley of the Platte, crossing the North Branch, near its junction with the South, where it is 2,100 feet wide and two to six feet deep. Then we follow the river, until we finally reach Omaha.

The Union Pacific.

I have given the above few statements of the places passed on the way. I will now give a few facts about the road, condensing as much as possible. The road is subdivided into four divisions, each with its Division Superintendent: the Utah, from Ogden to Bryan; the Laramie, from Bryan to Laramie; the Lodge Pole, from Laramie to North Platte City; and the Platte, from North Platte to Omaha. I met Mr. L. Fillmore, who is Div. Supt. of the Laramie Division, which will include also the Utah Division after June, 1871; and Mr. S. H. H. Clark, Div. Supt. of the Platte Division, which will include the Lodge Pole Division. The gentleman named have shown themselves so capable that they will retain charge of their enlarged divisions. The road has now in use 150 locomotives 41 passenger cars, Pullman palace cars on every train, 22 emigrant cars, 15 mail and express, 42 caboose, 13 baggage, 2,069 box, 1,629 flat, 342 coal, 12 fruit, 48 stock, and various other cars. It is firm and well built. The rails are fishbed, and the ties number 2,650 to the mile.

The government grant of lands for the lines from Omaha to Sacramento amounts to 22,720,000 acres, divided as follows: Union Pacific, 13,207,600; Central Pacific, 9,512,400. These figures are calculated for the junction at Promontory. The change to Ogden will make a difference. The subsidies are as follows: Union Pacific, 526 miles at \$16,000 per mile; 408 at \$32,000;

the Sacramento and San Joaquin Rivers, are naturally of a very porous nature, and, until consolidated by draining and settling, may not inaptly be likened to huge pieces of sponge, the edges of which are covered by a coating of clayey sediment, very nearly impervious to water. Upon the upper ends of some of these islands, sediment has accumulated to such an extent as to form quite a firm soil for several rods inland; while upon the lower ends, in many instances, it is simply a thin layer, extending but a few yards from the shore. Where this sediment is of sufficient depth to reach some feet below the bottom of the ditch or excavation, made in constructing levees, and is of sufficient consistency at this depth to keep out water, the levees may, if desirable, be located inside of the ditch; but upon the lower ends of these islands, where this coating is not more than three or four feet in thickness, the ditch should be on the inside; otherwise, cutting through this impervious layer, it would admit water to the edges of the "sponge," and the land inside would remain so saturated as greatly to impede, if not wholly prevent, cultivation, until sediment is deposited in the ditch in sufficient quantities to stop the water, which in many cases would not be for years.

the sales up to date (Dec. 16th, 1870) are 287,204 acres, amounting to \$1,280,190.35. At the same time, the intervening sections of rich Government lands on the line of the railroad are rapidly settling. Thousands have availed themselves of the fine opportunities thus presented to men of limited means. An additional amount of 280,000 acres, located in Washington, Dodge, Colfax, Saunders, Butler and Polk counties, Nebraska, has been placed in market by the company, better facilities offered to settlers, and the terms of payment made still more favorable. A branch road is built and running from Fremont across Dodge county, bridges across the Platte have been built, and other improvements are continually made. The Government lands are surveyed and open to entry by actual settlers, across the entire State of Nebraska, and will be surveyed and opened this season through Wyoming, Colorado and Utah. The Land Department receives daily 100 to 200 letters of inquiry, and the prospects of a large immigration this next year are very flattering. W. H. M.

Important to Tide Land Owners.

EDITOR PRESS:—Some, perhaps all, of the tide land islands, lying near the mouth of

upon enlarging the levee, the dirt was taken from the outside, letting in the water, and greatly injuring, if not entirely destroying the crop. He told me that the result of this experiment was such that the Trustees of the district would allow no more such work to be done. I make this statement, partly because the parties who consulted me contemplate disregarding my advice; but more particularly for the purpose of recommending those less headstrong and conceited to examine well the character of their lands before making their ditches on the outside. A. B. BOWERS, C.E.

Granular Fuel.

EDITORS PRESS:—In any country in which firewood is worth from seven to ten dollars a cord, it is an object worthy the consideration of every land owner, to avail himself of every means to turn to the best account every particle of wood growth, the product of his lands, that can be converted into a marketable article of fuel, at a value greater than the cost of production.

Is it generally known and understood that the now almost useless brush-wood and willows of large tracts of lands bordering the rivers and sloughs of our valleys, can be converted into a compact, valuable fuel for light fires, or for igniting themore solid materials employed in heavy ones either of wood or coal?

The preparation of such a fuel as this, consists in subjecting the willows or other brush-wood to the action of a machine similar in construction to an ordinary straw cutter, but of greater strength, by which it is cut into lengths equal to about twice the diameter of the brush-wood used. It is put upon the market, of different sizes, numbered one, two and three, depending upon the general diameter of the brush; and to effect this, the brush is sorted into three sizes before passing to the cutters.

It is sold by the bushel, and as the brush is always cut when free from leaves, the product is cleanly, and when dry, highly inflammable. The coarser grade, the most of which is an inch in diameter, is an excellent fuel alone, for small apartments or where only a light quick fire is desired to simply take off the chill from larger apartments, in which a more solid or lasting fire would be objectionable.

It is also useful in cooking, in a small way, or where it is desired to build a fire in a furnace or other close, compact place. The finer grades are used for quick kindling.

Alders and willows are the best woods, and most in vogue where the granular fuel is used, because easily cut, and are woods that contain a large amount of pure carbon, being the woods generally used for powder making. But the brush of any wood or timber can be used with large profit to the producer, and economy and comfort to the consumer. Even the stacks of broomcorn are sometimes used for granular fuel.

In many of the large cities of Europe, and particularly in the warmer latitudes, this kind of fuel is in such common use as to be deemed indispensable.

Granular fuel, though cut green, dries quickly, from the facility with which the air enters the pores of the short section, and is ready for use in a few days after being cut. This fuel once introduced into our large cities would never after be dispensed with.

Who will be the first to put this really excellent and useful fuel on our markets? The cost of the uncut, raw material would be but trifling, and alders and willow will renew their growth to a proper size, the third year from the last cutting. W. W.



150 at \$48,000; total, \$28,672,000; Central Pacific, 12 at \$16,000; 522 at \$32,000; 156 at \$48,000; total, \$24,384,000. Government also guaranteed the interest on the companies' first mortgage bonds to an equal amount.

The first contract for construction on the Union Pacific was made in August, 1864, but there were many obstacles at first. By January, 1866, 40 miles had been built. During 1866, 265 miles additional, and in 1867, 285 miles were completed. Then the work was pushed much faster, and on May 30th, 1869, the road met the Central Pacific at Promontory, the last 534 miles having been built in a little over 15 months, or at the average rate of nearly one and one-fifth miles daily.

I could give you many more statistics, did I not fear to take up too much space. But I must content myself with these few facts, which may prove of interest to your readers, although not new for the most part.

Railroad Lands.

In many places there is an abundance of good land, which is rendered available by the railroad, and the Union Pacific Company has under consideration plans for the irrigation of districts which only need water, as has been proved, to be rendered most productive. The company seems to be actuated by the soundest principles of economy in this respect, and to be doing excellent work. Their lands are located in Nebraska, Wyoming, Colorado and Utah, and the crops raised are most varied and large. A few statements on this subject may be in place here.

The office of the Land Department was opened for business, and the sales of the land commenced, July, 28th, 1869. During the first year, the sales were restricted to a tract included within the ten-mile limits on the first 200 miles of the grant. The lands offered have been eagerly taken by settlers,

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SCHENECTADY.—*Miner*, Dec. 31st: Good ore is being taken out from several drifts, and the prospect for plenty of work for a mill is cheering.

MR. BULLION.—The rock in this tunnel continues to work favorably, fifteen feet a week having been added for the past month.

MONITOR—SILVER GLANCE.—Encouraging symptoms in these; and with fair rock both drifts will reach points where something better than ever is expected, within a few weeks.

GLOBE.—On Monday work will be commenced on the new Esmeralda purchase of the Globe. A drift will be run upon the 320-foot vein found in the old tunnel. This vein at the point cut carries ore assaying \$15 to \$25 per ton, and when it is remembered that this claim is the same from which \$3,000 ore was taken near the creek in 1862, great things may be expected from this movement. This drift will intersect the course of the East drift from the main tunnel, and a winze will connect the two. The Mill is progressing finely.

CALAVERAS COUNTY.

RICH QUARTZ.—*Chronicle*, Jan. 7th: One of the richest ledges ever discovered in this county has recently been found by Mr. Andrew Sanderson, of Railroad Flat, near the Calaveras river, a mile and a half from Railroad. But very little work has yet been done, the sinking of a shaft twenty-two feet in depth comprising all, so far. Nine tons of rock were obtained from the shaft, hauled to Randolph's mill in Railroad, and crushed. On Monday last, Mr. Sanderson showed us the proceeds—a "chunk" of gold weighing 56½ ounces, an average of \$107 per ton. He has christened it the "Champion" lead.

WHISKY SLIDE MINE.—We learn that work is progressing rapidly on the mine. Hardigan & Co., the proprietors, are "pushing things." Their tunnel is in two hundred feet, leaving seventy-five yet to run. The mine will be in shape for thorough prospecting by spring.

RICH.—We have been shown some specimens of quartz from the bottom of the shaft at the Palomo mine, Lower Rich Gulch, that are certainly promising. Free gold is visible all over them, and the rock contains a large quantity of sulphurets that assay \$2,000 per ton. The specimens were from the depth of four hundred feet. At that point the vein is 8 feet in width. The batteries are being crowded to their utmost capacity, and the mine is paying well.

INYO COUNTY.

IGNACIO MINE.—*Independent*, Jan. 2d: By the failure of Mrs. Woodworth to pay the liabilities, the whole of the Woodworth interest becomes the property of Davison, the redemption creditor. Mr. Davison asks \$10,000 for his interest.

CERRO GORDO.—Cor. of same: Hart & Whipple, White & Williams, and Mr. E. A. Reddy are the only parties that are taking out any galena of note. On the Belmont side the tunnels are being prosecuted with vigor. The Crowning Glory has changed hands. The Oceola and Friendship are being worked. The Wittekind miners have their tunnel in one hundred and eighty feet, but have struck very hard rock, being unable to make more than five inches on each shift of ten hours. The Belmont miners have passed the point with their tunnel at which they expected to strike their ledge, but have failed to see it as yet. Harrington & Burns are still going ahead on the Sunburst, having a shaft sixty-eight feet deep, and a drift of nearly the same; they are taking out rich ore, and have on the dump enough to nearly pay all the expenses.

LASSEN COUNTY.

BIO VALLEY.—The Susanville *Sage Brush* says that Hayden Hill will soon prove one of the richest districts east of the Sierra. The Providence Co. have taken out several thousands of dollars worth of dust, merely by washing out the earth or dirt from their ledge, but it is impossible to save any considerable portion. Arastras will, however, soon be in operation.

MARIPOSA COUNTY.

SHUT DOWN.—*Gazette*, Jan. 6th: Operations at the mine and mill of the Mariposa Estate were suspended on Monday last by order of the Manager, and the hands were discharged. The results of the operations have not been satisfactory of late, in consequence, it is alleged, of mismanagement in the works. The pump will be kept

going, we are informed, and the mine kept in condition to resume work.

NEVADA COUNTY.

QUARTZ.—*Gazette*, Jan. 4th: The lack of rain for hydraulic mining has stimulated quartz prospecting. The Kistle ledge, three miles east of town, is being worked, after having been idle for some time, and is yielding excellent rock. The owners of the Wyoming ledge, on Wood's ravine, are having 100 tons of rock crushed at Sogg's mill. Good judges say the rock will yield \$50 a ton. The owners of the Orleans ledge, on Gold Flat, are having 100 tons of rock crushed as a test, at the Sebastopol mill.

THE PROSPECT.—*Transcript*, Jan. 5th: The gold yield, especially from gravel mines, will be largely increased this season. Gentry & Co., on Oustonah Hill, will complete their three years' tunnel work in time to commence washing in the spring. Rolfe & Co., on Cement Hill, are fitting up for hydraulicing. Considerable foreign capital has been invested in Bridgeport township. In Bloomfield, the Gravel Co. are working 11 men and taking out \$250 per day, while opening their claim. In Eureka new claims have been opened. In Rough and Ready Township, the discoveries at Randolph Flat by Webster & Co., McSorley & Co. and the Picayune Co., have given impetus to mining, and a number of claims will be opened. In Little York township, You Bet, Lowell Hill, Chalk Bluff, and Quaker Hill only need water to commence washing.

TO BE STARTED UP.—Same of 7th: We understand that the Nevada Quartz mine, formerly known as the Sogg's mine, is to be worked again. The San Francisco Co. have appointed a superintendent here, and work is to be commenced in 60 days.

A TUNNEL.—Same of 8th: The North Bloomfield Co. will commence very soon to run a tunnel from Humburg Creek to the gravel channel they are now prospecting. A force of 60 men will be put on, and the tunnel, which will be a mile long, put through as rapidly as possible. This Co. have gravel deposits 208 feet deep which prospect from the surface.

LITTLE YORK.—*Grass Valley Union*, Jan. 4th: Only one set of hydraulic claims is being worked, because of want of water. The mines are open, the pipes ready, and the miners are prepared.

MILLS IN NEVADA COUNTY.—Same of 5th: There are 60, containing in all 480 stamps. During 1870, 250,000 tons of quartz were milled. Part of these mills are for cement. In '69, Bridgeport township milled 30,000 tons of cement, and the figures for this year are considerably higher.

PLACER COUNTY.

WATER.—*Stars and Stripes*, Jan. 5th: The dust now flies where generally at this season of the year there is mud. Even the supply of water for quartz and cement mills is wanting, and ore accumulates on the dumps.

REDUCTION WORKS.—*Herald*, Jan. 7th: W. G. Green & Co. are erecting reduction works at their mine, two miles west of here, and will have them started by the time there is water to run them.

PLUMAS COUNTY.

RICH ROCK.—*Quincy National*, Jan. 7th: It is reported that very rich rock was discovered in the quartz claim of Hamill & Malloy, at Argentine last week.

NEARLY READY.—The machinery for the new mill at Argentine, owned by Ray & Concklin is being put in place.

EUREKA MINE.—*Grass Valley Union*, Jan. 11th: The run of the mill for 9¼ days, including last Saturday, resulted in a yield of \$23,000 worth of gold. That amount and \$8,000 worth from sulphurets, in all \$31,000, made the Eureka's shipment.

NORTH STAR.—The Company, last Monday, declared a dividend of \$4 per share on the stock. The last month's run of the mine was something above \$20,000, and everything underground promising.

SIERRA COUNTY.

THE KEYSTONE.—*Democrat*, Jan. 5th: The night hands on Friday drove a drill through from the lower tunnel to the one run from the shaft on the same level, thereby tapping 120 feet of water that was in the shaft. So accurately was the survey made by Ike Jones, that they did not experience the least difficulty. The men came out of the shaft in the car, 1,400 feet, by the time the water got out.

TAPPED.—*Messenger*, Dec. 7th: The Highland and Masonic Co., tapped the old shaft in their claim a few days since, without accident. There was three hundred feet of water in it, besides what was in the old stopes and tunnels. It took three days for the water to run out.

THIS WEEK.—The new mill at the Reis mine will be completed this week.

PUMP.—The owners of the Monte Cristo

claims at Port Wine have bought a new engine and pump for their works.

TRINITY COUNTY.

A PROSPECT.—*Journal*, Dec. 7th: Frank Dolliff, Orrin Treat and A. Canada have struck a back channel in Pike County Bar, four miles below Douglas City. They have a prospect of three bits to the pan, eight feet from the bed-rock.

Nevada.

COPE DISTRICT.

The Owyhee *Avalanche* of Dec. 31st gets these items from a late arrival: The Kanawa is one of the richest mines hitherto discovered in Cope District. They are sinking a shaft which is now 45 feet deep. It is a silver vein, from 8 to 12 inches wide, and Mr. Frazer describes it as being of fabulous richness. There are three quartz mills in operation—Norton's, Drew's and Vance's.

HUMBOLDT.

The Reno *Journal* of January 7th says that considerable ore from Battle Mountain, and other mining districts is now on hand at the Auburn Mill, but work will not be resumed until the 20th inst.

RYE PATCH.—*Register*, January 7th: One battery in the Carmony & Smith mill, was completed last Monday. On Tuesday the mill was started on ore from the Butte mine with satisfactory results. Attached to the mill is a roasting furnace, said to be an improvement on the Stetefeldt. The mill will have three batteries of five stamps each, with all the modern improvements.

REESE RIVER.

BULLION.—*Austin Reveille*, Jan. 2d: There was shipped during December, through the office of Wells, Fargo & Co. in this city, 75 bars of silver bullion, weighing 6,188 pounds, of the value of \$85,214.17. During the year 1870, the office shipped 754 bars, weighing 60,215 pounds, of the value of \$895,888.71.

MONTEZUMA.—Same of 3d: Mr. McGlew arrived here yesterday from this district, 130 miles southeast of Austin, with the first run of the mill just erected by himself and Mr. Dawley. Some 40 tons were crushed which produced 700 pounds of bullion of the value of \$6,000. The ore is taken from the dump as it comes.

EUREKA DISTRICT.

MOUNTAIN CHIEF.—*Sentinel*, Jan. 7th: This series of mines, viz., the Monarch, Weller, Mountain Chief and Miranda, is developing well; an incline on the Mountain Chief being down sixty feet, carrying quartz and chlorides the whole way, with indications of reaching the main body within twenty feet. The ore on the surface, though of low grade, will pay for sending to mill, at the reduced prices. The tunnel to prospect the four ledges at the same time is forty feet into the hill-side, with promising indications.

ELY.—*Record*, Jan. 1st: The bullion shipments of the Meadow Valley Co., for the week ending December 30th, amounted to 28 bars, valued at \$31,622.50. Barnum W. Field shipped 3 bars valued at 2,900. Ely & Raymond \$16,117.82, making the total for the week \$50,642.72. This does not include any shipments from the mills at Silver Park, run on ore from this District. The Creole ledge is being worked by two parties having contracts; the east end by Randall & Co., and west by Flood, Casey and others. Both are doing well. Flood & Co. are taking out very rich ore and plenty of it. By the 1st of February at which time their contract expires, they will have on hand 600 or 700 tons of ore. The contract on the east end of No. 7, run by Scott & Byrnes, has expired, and they have one hundred tons on the dump.

WASHOE.

CHOLLAR-POTOSI.—*Enterprise*, Jan. 8th: This mine is looking well. No new developments made. Last week there were mined 1,673 tons of ore, and of this were forwarded to the mills 1,472 tons. The average assay of the ore extracted has been \$64.25 per ton. The total yield of bullion for December has been \$505,654. The late dividend of \$10 per share aggregated \$280,000. The last run of 28 days by the Mexican mill, Carson River, yielded 4,290 pounds of bullion, worth \$125,004.06. The mill is driven by water, and contains 44 stamps and 24 pans.

OPHIR.—The Ophir Co. are driving ahead the up-rise from their south drift. It is intended to prospect the old ninth level of the mine near the Central line, just below where the pay-ore was lost when work was discontinued on the ninth.

SEGREGATED BELCHER.—But little work is being done. Work on the drift for the east body will be resumed next week. About 10 tons of ore raised per day. During the week a considerable amount has

been sent to the Eureka mill on Carson River.

WHITE.—The White lead, lately struck in working the Succor, has been drifted upon 35 feet south. The lead is now 12 feet in width. We saw an assay of ore which goes \$84.84 per ton.

IMPERIAL-EMPIRE.—Prospecting drifts are still being run as feelers. It is pretty certain that there is nothing east on the 1,300-foot level. The prospects not flattering at present.

OVERMAN.—Work is going on in the northern part of this mine and the usual ore is being extracted. Owing to legal troubles no work is being done in the southern sections.

GOULD AND CURRY.—About the usual quantity of ore extracted. Considerable work is being done in prospecting the upper portions, but no large deposits have been found.

DANEY.—The drift from the bottom of the shaft for the new level is still in hard rock, but is in 18 feet. Everything going on smoothly.

SIERRA NEVADA.—The mill is again regularly at work. Pans are being put into the Sacramento mill.

SAVAGE.—The winze on the 9th level, near the Hale & Norcross line, is down 60 feet, and all the way in good ore.

HALE AND NORCROSS.—The ore breasts in this mine are yielding well. The continued prosperity of the Co. is assured by the ore in sight and known to exist.

VIRGINIA CONSOLIDATED.—Still drifting west and still driving the branch drift toward the old Central ground.

CALEDONIA.—Nothing being done in this mine, it being shut down by the injunction obtained by the Overman.

SUTRO TUNNEL.—The Sutro Tunnel was yesterday in 1,760 feet. The ground works well. The water is increasing at the face of the tunnel.

CROWN POINT.—There is some improvement in the new body of ore south on the 1,100-foot level.

BELCHER.—No new developments and only low grade ore being extracted.

GOLDEN AGE MILL.—The mill, now being erected in Silver City, is approaching completion. The battery and other timbers are on the ground; the machinery is almost ready to set up, and the Superintendent says he will be ready for crushing on February 1st.

EMPIRE CITY.—The Carson City *Register* of Jan. 8th describes the Morgan Mill, belonging to the Yellow Jacket Co. It is run by a Leffel turbine (double-action) 66 inches in diameter. The mill commenced a run on the 2d, and yesterday it was estimated that the amalgam chests contained 250 pounds of bullion.

WHITE PINE.

ITEMS.—South Aurora keeps up its regular bullion shipments. North Aurora gives out more ore than can be conveniently hauled away. Eherhardt continues as good as ever. As soon as the tramway is finished a larger force will be put to work to take out some of the ore now exposed. O. H. Treasure takes out enough ore to keep the Swansea mill running day and night. Silver Wedge has indications of soon striking a large body of good ore in their shaft, which is 10 feet deep. Any amount of low grade ore in sight. Treasure Hill M. and M. Co., continue work on their claims, Posthole, Iceberg and Summit, with good prospects. Anchor is taking out good ore. Wabash is working in fair ore. We hear that the Great Basin is going to start up work on these mines on an extensive scale.

MILLS AND FURNACES.—The International machinery—stamps, pans, engine and boilers—is now in place, and the whole is receiving the finishing touches.

The erection of the posts for the tramway goes ahead. Big Smoky Mill has been running steadily. The new furnace will be started up during the week. Metropolitan is working with good results. Oasis is running on ore from the Earl mine, and is shipping plenty of bullion. Swansea Mill on Hidden Treasure ore, running day and night. Chicago Mill will be shipped in a short time to Pioche. Monte Christo is running again, and crushing ore from the Maryland mine, in Piute District. The Alsop Furnace is still shipping large amounts of base bullion.

SMEETING.—Hereafter the three furnaces of the Eureka Cons. Co. will be running constantly at an average of about 13 tons of bullion per pay. The Buttercup Co. at an average of five tons per day—the W. J. Bevan at an average of three tons—the Jackson six tons—the Ogden, Dunne & Co., at an average of five tons per day, and the Wilson, Robertson & Co., at an average of four tons per day.

PIOCHE.—*Ely Record*, Dec. 25th: The bullion shipments for the week ending December 23d, are as follows: Meadow Valley 23 bars valued at \$30,592.36; Barnum W. Field, 1 bar valued at \$1,550. Total \$32,142.36. The shipments by Ely & Raymond, from their mill at Bullionville, via Salt Lake, amount to \$15,296.19, making the week amount to nearly \$50,000.

EUREKA.—*Sentinel*, Dec. 24: The strike of the year.—Some party has made a discovery of the best ore, and the largest quantity ever found in this district, at Secret Cañon, near the mines of Geddes & Bertrand. The assays run into the thousands. There are 10,000 tons ore on dump here which will work above \$100 per ton. "Bonding mines" is going into disuse. The mill of the Mineral Hill Co. produced \$40,000 worth of silver bullion in the first 20 days of December.

VANDERBILT.—Same of Dec. 31st: The Hodgdon mine was bought last week by the Sierra Valley Mill Co. at \$12,000, and 12 men put on to work it. In 20 days from the time the company took possession of the mine they will have worked enough ore to pay for the mine. [We have for some reason failed to receive a single copy of the *News* this week.—E.D.S. PRESS.]

Colorado.

GRAND ISLAND.—*Central City Register*, Dec. 21st: A new and immensely rich pocket has been struck in the west end of the Cariboo mine. From 4 o'clock in the morning until 11 o'clock, four men took out 28 sacks of ore, each weighing from 275 to 300 pounds. It is estimated that this amount of ore is worth \$5,000, as it appears to be as good as another lot sold to Prof. Hill a few days ago, that assayed over 1,000 ounces per ton.

GOLD SHIPMENT.—Thatcher & Co. shipped 600 ounces of gold yesterday, worth \$10,000, making for the month so far, \$30,000. Of this, the California lode furnished 245 ounces, the Collins claims 122, the Stalker mine 123, and Rhoderick Dhu 100.

SUDERBORG.—Same of 28th: A week's work yielded 16 cords of mill ore, that produced \$2,970. During the same time, 30 tons of smelting oresold for \$1,350, making a total of \$4,320 for the last week's work.

ITEMS.—Same of Jan. 4th: The mills are mostly stopped by the freeze. A retort from the Suderborg, 4½ cords ore, weighed 50 ounces. Mr. Waterman had a retort of 60 ounces. Messrs. Cave & Miller Bros., on the Gregory Second lode, are putting up an engine and hoisting works, and expect to be raising ore by the first of next week.

LAKE COUNTY.—*Oro City Cor.* of same: The Pilot lode gave 35 ounces of gold from one pan of dirt. The lode is owned by the four discoverers, who do all the work. The Printer Boy is taking out rich quartz. At Granite all appears at a stand still. The old Treasure Co. have found good pay in the Dowley lode. They appear to be waiting for something to turn up. The Yankee Blade Co. have been talking of starting again, but there appears to be too many in the Co., so somebody must be frozen out. Eastern companies own these two mines.

GEORGETOWN.—*Cor.* of *Herald*, Dec. 31: The "Norman" is the first lode which will be reached by the Burleigh Tunnel. It carries 80 ounces of silver per ton, and plenty lead for smelting. The Magnet main shaft is 45 feet deep, and the vein of rich ore 10 inches wide. Stewart returned 260 ounces for the last lot run.

Georgetown *Cor.* of *Register*, Jan. 4th says: The Silver Plume is reported promising. Recent assays place it far ahead of the Snow Drift lode. A new vein of rich sulphurets is reported to have been struck in the White lode. The prospects indicate that it will shortly be acknowledged the largest and richest lode in Griffith District. One ton and a half of sulphurets from the E Pluribus Unum lode gave \$500 currency at Stewart's works.

GEORGETOWN.—*Miner*, Dec. 22d: John Coburn showed us an assay button from Sterling ore. The ore 82 feet from the surface, assayed \$11,306.

Same of 29th: First class Willow ore assays 400 ounces per ton. Six tons Mendota ore gave 52 ounces silver per ton.

Same of Jan. 5th: The Brown Co. shipped yesterday a "button" of silver weighing 3,378.9 Troy ozs., coin value \$4,392.57.

TERRIBLE.—The ore from this mine is reported in the *Louden Mining Journal* at something over \$700 per ton.

Idaho.

ITEMS.—*Avalanche*, Dec. 31st: The Oro Fino is yielding ore that, we are informed, will pay \$60 per ton. The quartz mill at Fairview is completed, and will be put in operation next week. The new engine at the Golden Chariot is being put in place, and will be ready to run in about a week.

BULLION.—The total shipments for 1870, per Wells, Fargo & Co., amounted to 391 bars, valued at \$806,074.49.

SNAKE RIVER MINES.—*Boise News*, Dec. 31st: Mr. Hunter informs us that, owing to the inclemency of the weather, mining operations have about closed.

Montana.

RETORT.—*Helena Gazette*, Jan. 3d: Yesterday we saw at Hirschfield & Co.'s bank a lump of gold retort which weighed two hundred and ninety-five ounces, the result of ten days' run from quartz from the Parkinson lode, taken out by the Whitlatch Mining Co., and crushed at the Whitlatch mill.

CABLE CITY.—*Cor.* of same: The Hanner mill is crushing rock from the celebrated Atlantic Cable mine. The Cameron Co. are taking out quartz at a depth of one hundred and fifty-two feet. The Cable City mill is lying idle, subject to arbitration.

PHILIPSBURG.—*Cor.* of same: The stamps of the J. Stuart mill are again in motion, and it seems evident that the management is business-like. It labors under great disadvantages, however; and if the enterprise proves a success in spite of them, there need be no further doubt about the stability and permanence of the Flint Creek silver mines. The C. S. S. C. Company's smelters have ceased to operate. They are talking of a further experiment.

QUARTZ.—*Helena Herald*, Jan. 5th: Mr. Noble, on Wisconsin Creek, near Sheridan, is taking out from one to three tons of gold quartz per day, and working the same in an arrastra. The ore yields an average of \$23 per ton.

The Deer Lodge *Independent* of Dec. 31st says the mill at Philipsburg stopped for repairs after running two days. Three hundred tons ore on the dumps and ten men taking out more. It will average \$40 per ton. The smelting works at that place had stopped because they were not suited for the ore.

Mexico.

CHIHUAHUA.—The *Santa Fe Post* of Dec. 24th has a letter from El Paso, dated Dec. 11th, with further news from the rich placers. We give an item, which reads like the California news of '49. "Some of the principal merchants in Chihuahua have formed a company, and are working a small and very indifferent rocker. On Tuesday week, they took out with twelve men, in eight hours, 37 ozs. and 4 dwts. of gold, and on the following day, \$500. These twelve men have averaged since they began work, over \$300 per day. This with dirt taken at random from the gulch, in no place more than three feet from the surface."

Oregon.

CANYON CITY.—The *Dalles Mountaineer* of Dec. 24th says: Mr. James Clark reports that all mining operations have ceased on account of the cold weather.

WILLOW CREEK.—*Boise News*, Dec. 31st: Messrs. Boswell, Moore and others have just completed the construction of a pump, to be run with horse power, to prospect their claim. The Co. intend to continue their ditch to an abundant supply of water as soon as the opening of spring.

Utah.

TINTIC.—*Salt Lake Tribune*, Dec. 31st: The Tintic lode is being worked by Eddy, Mathews, Hastings & Co., night and day. This Co. have purchased an interest in the Anthony Wayne, also 400 feet in Sidney Worsley, in the Eureka. For the latter they pay \$5,000, cash. The James Bird, showing rich mineral, will be developed by the same company. Messrs. Brewer, Gyde & Co. have resumed work on the Lafayette, which is showing a 2½ feet vein of rich ore. The Shoebridge and Uncle Sam lodes are being worked, and good paying ore is taken out. The Pioche ore are nearly ready to resume their labors.

The Cottonwood furnaces were to be running by January 1st.

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Jan. 12.

The mining share market has been moderately active during the past week. On Monday, the election of the Board resulted as follows: President, J. B. E. Cavalier; Vice-President, E. E. Eyre; Caller, H. B. Coit; Secretary, F. Lawton; Treasurer, H. Schmiedell; Sergeant-at-arms, T. M. Blair.

Light sales of Alpha and Amador, at 4 and at 320 to 325 respectively have occurred. Belcher has been quite active at 7 to 8½. Chollar has sold from 78 to 72. The receipts for December were \$505,654. On the 5th, \$100,204 were shipped from the mine, from which were

taken, last week, 1,673 tons of ore, assaying \$67.24. A dividend of \$5 per share (amounting to \$140,000) was paid on the 10th, and another of the same amount is payable on the 16th. Crown Point has been lively at 18 to 20. The mill crushed, last month, 1,350 tons of ore, which yielded \$32,357, or an average of \$23.96 per ton. Daney has sold at 3 to 3½. An assessment of \$1.50 per share has been levied, delinquent Feb. 14th.

The Eureka (Cal.) Company, on the 3rd, increased the capital stock from \$1,200,000 to \$2,000,000, divided into 20,000 shares of \$100 each. Eureka Consolidated has been lively at 16½ to 15½. Golden Chariot has sold from 65 to 70. The dividend paid on the 10th amounted to \$40,000. The December receipts were \$76,277. Gould and Curry has varied from 43 to 51; Hale and Norcross from 106½ to 98½. The latter company paid a dividend of \$5 per share (\$40,000) on the 10th; 1,100 tons were extracted from the mine last week. Ida Elmore has sold at 10, and Imperial at 19 to 15. Kentuck has been dull at 34 to 38.

Meadow Valley has been in good demand at 25½ to 27½. A dividend of \$1 per share was paid on the 9th. December receipts, \$151,675. Opbir has sold at 3½ to 4; Original Hidden Treasure, at 3 to 4½, with large sales last week. Overman has been quoted at 2½ to 5½. Last week 559 tons of ore were extracted from the mine. Savage has been lively at 5½ to 56. From the mine, 1,375 tons were raised last week. December receipts, \$71,400. Silver Wave sold twice, at \$1 and at 50 cents. An assessment of \$1.50 is now delinquent. Yellow Jacket has sold largely at 43½ to 38.

North Star paid a dividend of \$9,000 on the 10th. The receipts for December amounted to \$19,400. The Union Pacific Salt Company have declared a dividend of ¼ per cent., payable immediately. An assessment of \$2 per share on the stock of the North Bloomfield Gravel M. Co. became delinquent to-day. Yellow Jacket paid \$48,000 in dividends on Tuesday.

SIERRA NEVADA M. Co.

The annual meeting of this company was held on Monday, when the following Trustees were elected: M. J. McDonald, L. Vesaria, O. H. Bogart, A. Hemme and G. W. Cope.

RECEIPTS.	
From Bullion.....	\$220,287
Miscellaneous.....	9,940
Total.....	\$230,227
DISBURSEMENTS.	
Indebtedness per last statement.....	\$16,077 05
Dividends.....	37,500 00
Mill account.....	47,132 10
Mine account.....	45,847 91
Cedar Hill Flat Rock Title.....	32,099 04
Crushing outside mills.....	10,662 85
Incidentals.....	4,700 00
Cash on hand.....	14,646 88
Total.....	230,226 82

Average cost of mining and milling \$6.68; average yield of ore from January to July, \$8.46; and from August to December, \$16.09 per ton. A dividend of \$1 per share becomes payable on the 16th.

GOLD HILL QUARTZ MILL AND M. Co.

The annual meeting of this company was held on Monday. The following were elected Trustees: A. Hemme (President), R. Wegener (Secretary), W. C. Ralston (Treasurer), P. G. Venard, L. Imbaus, C. Gignoux and C. Friedberg. Superintendent, H. Hugnet. The receipts for the year amounted to \$87,192, of which \$17,287 was from bullion produced, \$37,206 from the operations of the mill, and \$15,000 from two assessments, levied in May and September. The disbursements embraced \$42,210 for milling, \$6,878 for mining, \$9,088 for improvements and \$5,661 for general expenses. The assets consist of book accounts to the amount of \$12,939, against which there are liabilities amounting to \$9,560, showing a surplus of \$3,379.

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]			
	BID.	ASKED.	
Alpha Cons.....	—	—	Ida Elmore..... 13 14
Amador..... 280	—	—	Imperial..... 14 15
Belcher..... 7 7½	—	—	Kentuck..... 35 36
Chollar..... 73½ 74½	—	—	Kentuck..... 35 36
Crown Point..... 22½ 22½	—	—	Occidental..... —
Dancy..... —	—	—	Opbir..... 2½ 3
Elmore..... —	—	—	Orig. Hid. Treas. 3½ 4
Elmore Mill..... —	—	—	Overman..... 4½ 4½
Eureka..... 360 370	—	—	Savage..... 49½ 49½
Golden Chariot..... 80 85	—	—	Silver Wave..... ½ —
Gould & Curry..... 45½ 46	—	—	Sierra Nevada..... 19½ 20
Hale-Norcross..... 97 98	—	—	Yellow ket..... 39½ 39½

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

PHENIX M. Co., Eureka District, Nevada.—Dec. 7th. Capital Stock, \$200,000. Trustees: J. B. Haggin, G. Hearst, J. M. McDonald and A. E. Head.

BAY CITY SONA WATER Co.—Dec. 8th. Capital Stock, \$100,000, in 1,000 shares. Trustees: J. F. Robe, C. Turner, H. K. Rice, H. Brader.

B. D. Ellenkamp, J. J. Bliven and J. McEwen.

GOLDEN STATE RELIEF ASSOCIATION.—Dec. 17th. Directors: A. Badlam, W. V. Wells, A. K. Stephens, A. P. Sutton and C. W. Jones.

CAL. BARREL CO.—Dec. 17th. Capital Stock, \$500,000, in 5,000 shares. Trustees: W. LeRoy, C. T. Forrest, A. C. Hnssey, A. J. Lord, B. F. Bonton, D. A. McDonald and H. Chapman.

NEVADA CONS. BORAX Co. Nevada.—Dec. 19th. Capital Stock, \$3,000,000, in 100,000 shares. Trustees: W. S. Bell, W. Troop, J. W. Lynch, C. Myrtnes, J. L. Sanford, S. E. Holcombe, W. E. Brown, W. R. Chmness and O. Walker.

JACOBSON M. Co. Eureka District, Nevada.—Dec. 22d. Capital Stock, \$5,000,000 in 50,000 shares. Trustees: J. D. Fry, W. H. Clarke, C. C. Goodwin, W. T. Lockhart and A. E. Head.

EUROPEAN AND OREGON LAND CO.—Dec. 23d. Capital Stock, \$5,000,000, in 50,000 shares. Trustees: E. H. Green, A. DeLaski, R. Sulzbach, J. E. May, F. D. Atherton, W. C. Ralston, M. S. Latham, B. Holladay, W. F. Roloffson, W. Morris and L. Tevis.

HOPE GRAVEL M. Co. Grass Valley.—Dec. 24th. Capital Stock \$1,200,000, in 12,000 shares. Trustees: L. P. Penny, J. E. Marchand and J. W. Jenkins.

CAIMUS M. Co. Nevada.—Dec. 27th. Capital Stock, \$1,000,000, in 10,000 shares. Trustees: A. W. Bowman, H. A. Cheever and A. J. Page.

BRANSHAW M. Co. Nevada.—Dec. 28th. Capital Stock, \$2,000,000, in 20,000 shares. Trustees: W. H. Sharp, S. Steinhart, and W. Seligsberg.

ELECTRICAL CONSTRUCTION AND MAINTENANCE CO.—Dec. 28th. Capital Stock, \$100,000. Trustees: G. H. Mumford, J. Gamble, G. S. Ladd and S. D. Field.

LAND MORTGAGE UNION.—Dec. 31st. Trustees: J. H. Fish, J. M. Johnson, J. Morton, W. Sherman, E. V. Hathaway, E. D. Sawyer and T. R. Hayes.

RAYMOND AND ELY M. Co. Nevada and Utah.—Dec. 31st. Capital Stock, \$3,000,000 in 30,000 shares. Trustees: S. F. Butterworth, A. Bull, G. D. Roberts, W. H. Raymond and C. J. Buchanan.

The following have been recorded in the Secretary of State's Office, Sacramento.

CENTRAL PACIFIC M. Co. Nevada.—Dec. 12th. Capital Stock, \$200,000 in 2,000 shares. Trustees: F. H. Smith, W. W. Gupill, C. S. Mott, C. Cogan and D. H. Faslin.

CAL. AND ARIZONA R. R. Co.—Dec. 22d. Object, to build and operate a railroad from Wilmington, Los Angeles Co., to Wickenburg, Arizona. Capital Stock, \$5,000,000. Directors: P. Banning, D. W. Alexander, H. Van Valkenburg, H. Jacoby and E. N. McDonald.

CALIFORNIA CENTRAL R. R. Co.—Dec. 29th. Object, to build road from Benicia to Red Bluff. Capital Stock \$5,000,000. Directors: A. Redington, S. F. Butterworth, B. M. Hartsborne, J. Binsley and W. H. Taylor.

Meetings, Elections, Etc.

ANCHOR CONS. M. Co.—Dec. 9th. Trustees: J. C. Wade (President), C. E. Fairbanks (Vice President), G. W. Browning, T. C. O'Reilly and J. G. Crocker. Secretary, A. Noel.

BUENA VISTA VINCULATED CO.—Dec. 21st. Trustees: W. Blanding (President), C. Christensen (Vice-President), W. C. Ralston, O. C. Pratt, C. Baum, J. Binsley, C. Koebler, B. E. Anger, and W. M. Rockwell, Secretary, M. Phillips.

HIDDEN GRAVEL M. Co.—Dec. 27th. Trustees: L. Terse Jr. (President), W. Curman (Vice President), W. A. Bateman, H. K. Moore and D. Wilder (Secretary).

CAL. CENTRAL R. R. Co.—Directors: A. Redington (President), S. F. Butterworth, W. H. Taylor (Treasurer), B. F. Hartsborne and J. Binsley. Secretary, J. T. Hoyt.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY	DELINQUENT OF SALE
Altoona, Nevada, Dec. 2, 50c.....	Jan. 9	Jan. 30	
Argenta, Nevada, Dec. 17, 60c.....	Jan. 19	Feb. 17	
Belcher, G. H., Dec. 2, \$1.....	Jan. 6	Jan. 24	
Cherokee Flat, Butte Co., Dec. 8, \$5.....	Jan. 9	Jan. 27	
Cons. Virginia, Nevada, Dec. 9, \$1.50.....	Jan. 14	Feb. 4	
Dancy, Nevada, Jan. 10, \$1.50.....	Feb. 14	Mar. 4	
El Dorado, Va. City, Oct. 24, \$2.....	Jan. 16	Feb. 14	
Imperial, G. H., Nov. 22, \$10.....	Dec. 27	Jan. 18	
Kincaid Flat, Tuol. Co., Jan. 12, \$2.50.....	Feb. 17	Mar. 4	
I. X. L., Alpine Co., Oct. 18, \$1.....	Jan. 31*		
Maxwell, Amador Co., Dec. 21, \$2.....	Feb. 7	Mar. 7	
Meadow Valley Ex., Nev., Dec. 21, 50c.....	Jan. 23	Feb. 18	
Nevada, Nevada, Nov. 16, 4c.....	Dec. —	Jan. 7*	
North Bloomfield, Nevada Co., Dec. 10, \$2.....	Jan. 12	Jan. 20	
Opbir, Virginia City, Jan. 11, \$2.....	Feb. 14	Mar. 7	
Overman, G. H., Dec. 8, \$5.50.....	Jan. 11	Jan. 30	
Placer, Placer Co., Jan. 4, \$6.50.....	Feb. 15	Mar. 11	
Providence, Nevada Co., Nov. 12, \$1.....	Dec. 21	Jan. 5*	
Seg. Belcher, G. H., Nov. 18, \$1.....	Dec. 21	Jan. 10	
Silver Wave, W. P., Dec. 10, \$1.50.....	Jan. 11	Feb. 8	
Virginia, W. P., Dec. 17, 50c.....	Jan. 23	Feb. 14	
Washington, Mariposa Co., Dec. 12, \$3.....	Jan. 16	Feb. 6*	
Wheeler, Nevada, Dec. 13, 50c.....	Jan. 13	Jan. 30	

MEETINGS TO BE HELD			
NAME	DATE	PLACE	REMARKS
Amador.....	Annual Meeting, Jan. 16		
San Morcial.....	Special Meeting, Jan. 16		
LATEST DIVIDENDS—(Within Three Months)			
Black Star, \$1.50 per ct.....	Payable Jan. 9		
Chollar-Potosi, \$5.....	Payable Jan. 10		
Chollar-Potosi.....	Payable Jan. 16		
Eureka, div., \$10.....	Payable Jan. 5		
Golden Chariot, div., \$14.....	Payable Jan. 10		
Hale & Norcross, div., \$5.....	Payable Dec. 10		
Meadow Valley, \$1.....	Payable Jan. 11		
North Star, \$1.50.....	Payable Jan. 9		
Sierra Nevada, div., \$1.....	Payable Jan. 10		
Yellow Jacket.....	Payable Jan. 16		

*Advertised in this journal

THE VINEYARD.

Profits of Grape Growing.

In order to realize the largest profits from any branch of fruit growing. Care and judgment must be exercised in the selection of the varieties to be cultivated. In the matter of grapes, for example, two and three times the amount of profits may be derived from some kinds of grapes, over that obtainable from others, when raised for the table.

Enormous profits are realized from some of the vineyards in the immediate neighborhood of this city, especially where proper judgment has been employed in the selection of varieties and corresponding care of their culture. The following figures have been given as reliable and trustworthy:—Mr. Shaw has realized as high as \$420 per acre, gross, from his Muscat of Alexandria vines—he has reported an annual average of \$270 net. Meister Brothers, report still larger profits—\$273 per acre gross, and \$775 net from the Alexandria Muscat; and over \$450 from black Hamburg, black Malvoise, golden Chaselas and White Tokay. He has reported as high as \$2,300 net per acre, from small lots of very rare varieties, such as have commanded an exceptional price in the market.

The mission grape, the most abundant, and least valuable, has paid as high as \$100 net, when carefully cultivated for the table, and convenient to the market. When we consider the small average profit from an acre of wheat, or other grain or root crops, it would appear evident that those Californians who have large numbers of choice vines, well bearing and in good locations, must be getting large interest for their investment.

Of course grape growing, for wine, is a very different affair, and less profitable; but wherever a sufficient amount of grapes can be found in any given locality to sustain an extensive wine manufactory, the profits for the vineyards, even the most ordinary, is many times that which can be realized from wheat culture, even when the fullest allowance is made for the cost of planting and bringing the vineyard to maturity.

The culture of the grape for wine or raisins is a branch of agriculture that can be most profitably and conveniently followed in the lower portions of our mountain counties, and should be everywhere encouraged. With the other branches of business, which its presence will introduce, it may be made one of the most ready and effective means of advancing our mining counties from their present state of financial depression to the very height of prosperity.

As an evidence of this let us look at a few facts with regard to the vineyards of France, as they were before the commencement of the present devastating war in that country. There are 5,500,000 acres of vineyard in that country, distributed among a population of about 3,000,000 people nearly all of whom are either directly or indirectly dependent upon that business. The vineyards are generally divided up into small areas, averaging about 2½ acres each. The average yield of wine is about 250 gallons per acre. Many vineyards yield a profit of \$300 per acre, per annum. The choice vineyard land, with the vines thereon, is worth from \$2,500 to \$5,000 per acre. The vineyards of France feed, either directly or indirectly about one-tenth of the entire population of that country, and create enormous annual values, said to represent something like \$260,000,000 a year. It will be seen that the yield of the wine in France, is set down much below the average of our California vineyards. This State has nothing to fear, in the future, from France in this business; and the values there created and the population then supported may easily be realized in our own State—and nowhere more readily than in our foothills—the natural home of the vine.

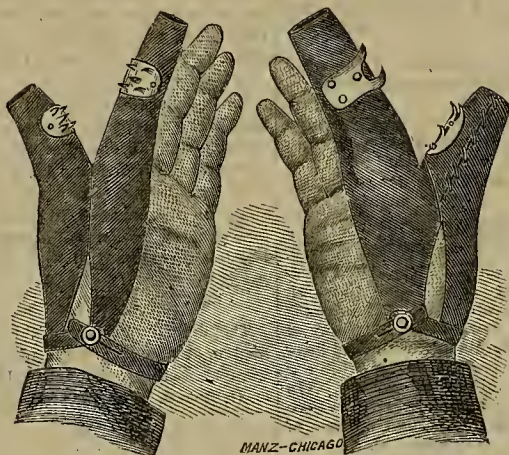
Pruning Grape Vines—A New Idea.

EDITOR PRESS:—I notice that the *California Horticulturist*, of December, advises "owners of vineyards to prune their vines as soon as time and circumstances will admit."

There has been a great deal written, *pro* and *con*, on early and late pruning of the grape vine, and there are some facts that are worth considering. I hardly think it proper to advise indiscriminately.

Vines grown in scanty soil and in dry parts of the State—the interior valleys and foothills of the Sierra Nevada—should be pruned before the sap starts in the spring, as they require all the nutriment which has been collected and stored in the roots; but vines grown in moist, rich soils, near the coast, are better pruned in the spring. The profuse "bleeding" is rather a benefit, as the vines then run less to wood, and fruit better; if so exhausted, moreover, the fruit is less liable to mildew, and is sweeter than on vines early pruned.

It is a well known fact that in the hot, dry valleys and foothills the vine is prolific of fruit and is not over vigorous; while about San Francisco Bay, and within the full influence of the moist sea breeze, the grapes are more acid, watery and soft, the



HALL'S PATENT HUSKING GLOVE.

vines less productive, and great runners. Not only is it well to "bleed" the vine in such localities, but it is also well to

Crop the Vineyards

with early vegetables—peas and such kinds of plants, as will exhaust the soil of moisture and strength.

This idea will probably be new to most of the readers of the Press. Indeed, I believe it is a new idea in fact; but it is worthy of trial. I have seen two small vineyards in San Jose, side by side—one pruned early, and well cultivated; the other pruned late and not tilled at all—everything else being equal. The one not pruned or cropped was a failure in fruit; while the one late pruned, and cropped to grass and weeds, produced an abundance of fine quality of fruit.

S. HARRIS HERRING.

MONTANA IRRIGATING CANAL.—The *Helena Gazette*, which keeps us well posted on many important matters in its territory, gives the following concerning the Jefferson Canal: It is taken out of the Jefferson, near Silver Star, and is calculated to carry 20,000 inches of water. It covers a great deal of fine farming land on Fish Creek, White Tail Deer Creek and Boulder; passes behind Radersburg, close to the mountains, and covers the entire Missouri Valley from Helena to that point. The extreme length from the point where it is taken out to Helena is one hundred and sixty miles, and presents little or no difficult work on the route. The arable land which it covers consists of twenty-five townships, each containing 36,000 acres, or a total of 576,000 acres, being the largest amount of arable land in any valley of the Territory, and far more than can be covered by any similar work. Besides these agricultural lands thus proposed to be rescued from the wilderness, the canal covers many valuable placer mines, including those near the Jefferson, those on Indian Creek, those on Beaver Creek, Mitchell's Gulch, McClellan Gulch, Prickley Pear, the lower part of Holmes' Gulch, and gulches and bars between that and Helena, and lastly, the immense Helena bars.

Corn Huskings.

To many of the elder portion of our readers, the above title will recall memories of former merry-makings at the East. Scenes of busy hands and cheerful faces, the old barn, the piles of grain, the finding a red ear of corn and its consequences, may be conjured up. The name has to many of both sexes a forcible significance.

One little drawback on such occasions was the unpleasantness of getting the hands sore. The constant friction, the wear and tear, was severe on those whose skin had not attained a very considerable degree of toughness. Our illustration shows a device for preventing this, and of enabling one to do the work more rapidly. The invention consists merely of leather gloves, of the form shown in the cut, which are provided with metallic claws attached, which assist in tearing the husk from the ears. These gloves protect those parts exposed to the wear from the husks, and enable one to husk perhaps double the amount otherwise possible.

The glove with the small claws is made to enclose the thumb and forefinger of the left hand, and the glove with the large claw to enclose the thumb and first two fingers of the right hand. They are laced

MANZ-CHICAGO

and strapped to fit. The ear of corn is held in the left hand and one-half of the husk is stripped with the right. Then the remaining part of the husk is started by a side movement of the left thumb past the edge of the ear, and stripped back with the thumb and forefinger. At the same time the ear is grasped with the right hand and broken off across the left.

It will be seen that it is not necessary to commence at the end of the ear, as with other huskers, but the ear may be grasped two or three inches back from the end where most convenient. The thumb of the right hand should fit between the large claws of the fingers of the same hand, when they are pressed together, which gives a very firm hold of the husk while stripping it off. It is important to pull lengthwise of the plate and across the fingers, instead of across the plate and lengthwise of the fingers, a mistake made by many.

Testimonials from farmers are given, showing that the gloves are highly esteemed wherever used. We have a pair at our office, which we retain, not so much from an expectation of using them in corn, but as a means of offense and defence in possible emergencies. The gloves have been patented and are manufactured by the Hall Husking Glove Company, 90 and 92 South Water street, Chicago, Ill. They are made of three sizes, and for both right-handed and left-handed persons.

THE PEELER COTTON.—The *Georgia News* says: "This variety is giving satisfaction. It is rapid in its growth, matures early, is very prolific, and the staple is almost if not quite, equal to the black seed—long, silky and strong. It ought to, and probably will, sell for ten or fifteen cents more than the ordinary cotton. It will be largely cultivated in this section next season."—The Peeler, it will be observed, is one of the varieties recommended for cultivation in this State.

California Agricultural Notes.

THE GRASS started around Stockton by the early rains, has been much of it, destroyed by the recent frosts.

THE COLD WEATHER has killed a great many sheep in the upper San Joaquin valley.

THE farmers around Woodland are holding on to their wheat, believing that the want of rain for the new crop will produce an advance in price.

Cows and young calves are said to be dying on the plains about Marysville for want of feed.

LARGE EGG.—The *Solano Republican* has received an egg measuring 6½ by 7½ inches in size.

MILK FOR SAN FRANCISCO.—There are 200 wagons engaged in supplying this city with milk. They deliver 12,000 gallons every day—including the water added.

TULE LANDS.—The *Vallejo Chronicle* of December 29th says: Smith & Co., who have been reclaiming some lands a few miles above Vallejo, have nearly completed the reclaiming of about 11,000 acres, all required now being but the erection of a few flood-gates. This they have sold at a fair price, and in the coming spring intend commencing the reclamation of another large tract.

PARASITES IN WILD GAME.—The *San Jose Independent* of the 4th inst., has the following: Mr. E. W. Hamilton yesterday showed us a duck which he shot on Cayote creek on Sunday. The flesh of the breast was filled full of parasites, the size and appearance of the common maggot. Otherwise the bird appeared to be in a healthy condition. The parasites were embedded in the tissues, while the flesh surrounding them appeared to be perfectly free from any disease. The flesh was entirely unbroken, and there was no trace of a wound anywhere.

We learn that the farmers around Davisville are much discouraged from the want of rain, and that they have now quit plowing. They have suffered recently from a strong north wind, which dries up the ground, and has a very prejudicial effect upon farming operations.

THE *Chico Enterprise* of the 31st ult. says: Notwithstanding our cold, freezing nights, our farmers are plowing, the ground still being in good condition. We are favored; as we have been informed that the lower counties are suffering for want of rain, and plowing is entirely stopped.

AROUND Haywood the farmers are plowing deeper than usual this year. They state they will be compelled to stop work unless it rains within a few days. Cattle are suffering for want of feed. The grass is very short and has been cut down by the heavy frost.

LIVE FENCES.—About two years ago a number of farmers at the upper end of this county, says the *Vallejo Recorder*, commenced setting out live fences, mostly of Osage orange. They have been growing very rapidly, and now strings of live fences, five or six miles in extent, may be seen there. The farmers encouraged by the wonderful growth of this kind of fencing, and its many advantages, have been setting out live fences very extensively this winter.

ORANGES AND CORK OAK.—The *Visalia Delta* of December 7th has the following: We have had extraordinary heavy frosts lately, but we notice that it seems to have no effect upon our orange trees, those that are in bearing look perfectly healthy and will undoubtedly mature the crop. There is a region along the margin of the foothills much more free from frost than the valley around Visalia, and there can be no doubt but that this region is as well adapted to the production of the orange as any portion of the State. We notice also that the few specimens of cork oak, that have been planted here are healthy, and have made a growth quite equal to that of our native live oak.

GROWING COCONUTS.—A resident of Yuba county, says the *Marysville Standard* of the 30th ult., having been successful last year in growing a cocconut, it having reached a height of two feet, a number of our citizens are also experimenting with this tropical fruit. We made a thorough examination of a lot of cocoanuts at Knight's fruit store a few days ago, and found five that had live sprouts about an inch in length. The plant germinates through what we call "the mouth of the monkey," said germ being carefully protected from cold and injury by the husky bark which covers the end. The experiment of growing cocoanuts in this climate is one worth trying.

POPULAR LECTURES.

Theory of Mineral Veins.

[Prof. JOSEPH LECONTE before the MECHANIC ART COLLEGE. Reported expressly for the PRESS.]

LECTURE VI, January 7.—In my last lecture, said Prof. LeConte, I spoke of the mode of occurrence, the structure, the contents, and the surface changes of mineral veins. I have now to speak of the important laws affecting the occurrence and also the richness of these veins. These have never before been collected and grouped together in any publication.

Rules of Occurrence and Richness of Veins.

1. Mineral veins occur mostly in disturbed and metamorphic regions, where the rocks have been tilted and broken and have undergone changes—been metamorphosed—through the action of heat and water. These conditions occurring in mountain ranges, mineral veins are, consequently, principally in mountainous districts. The only general exception is the occurrence of lead veins, which are often found in flat, level regions, as is the case with the lead mines of the Mississippi Valley.

2. Mineral veins occur mostly in the older rocks, especially in the Azoic and Paleozoic. In England not one worth working occurs above the Triassic. This is true as a general rule, but has been pushed too far by the older geologists, because their geology was founded mostly on facts derived from examinations made principally in England and France, where the theory would hold. It was an old idea that there was a metalliferous age just as there was a carboniferous age; yet we have seen (from the preceding lectures) that even the carboniferous age does not include all the coal deposits. The idea of a metalliferous age is wrong. In California we have veins in the Triassic, Jurassic, Cretaceous, and even to some extent in the Tertiary periods, but always under the conditions named above, under Rule 1. The reason why the older rocks generally contain more veins is because they are generally more metamorphosed. But where we find the younger rocks thus changed, we may also expect to find veins.

[To refresh our readers' memories and render these remarks clearer, we append the following table of geological eras and periods, commencing with the latest. ED. PRESS.]

Recent.....	Age of Man.
Kainozoic.....	Post Tertiary.
	Tertiary.
	Cretaceous.
Mesozoic.....	Jurassic.
	Triassic.
	Carboniferous.
Paleozoic.....	Devonian.
	Silurian.
Azoic.....	Azoic.

3. If we have a number of veins in a given locality, those parallel with one another generally



ally have similar metallic contents. A good example is shown in the accompanying diagram (Fig. I) which is a rough sketch of Cornwall. Here we see two systems of veins, one running east and west and another running north and south. The latter are called "cross courses." The east and west veins contain copper and tin. The north and south veins contain neither copper nor tin, but only some iron and lead and are generally considered worthless.

The reason of this is that the parallel veins generally belong to the same system, were formed at the same time and by the same movement of the earth's crust and were filled under the same conditions and from the same rock. Other veins were formed at different times and under different circumstances. Thus, in Cornwall the east and west courses are known to be older than the north and south ones. The former break through the paleozoic and triassic rocks, but do not break through the jurassic; the latter break through the jurassic and even the cretaceous. In California, the auriferous veins are all parallel to the trend of the Sierra Nevada and were probably produced by the same movement which threw up that range.

4. If we trace a vein a long distance, we find that it often breaks through different surface rocks, and that a change of rock generally is accompanied by a change in the richness and even in the nature of the metallic contents, although this last change is not always so great as we might perhaps expect. There is a difference here between the mineral veins we are treating of, and the veins of infiltration alluded to in the last lecture. As the latter depend entirely on the nature of the enclosing rock, a change of the last produces an entire change in the vein, which is not necessarily the case with our mineral veins.

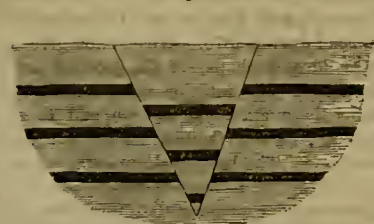
5. Veins are generally richer where they come in contact with igneous rocks in the form

of granite or trap rock, particularly when there is an accompanying contact-metamorphism. To this rule lead veins often form an exception.

6. When veins cross, especially at a small angle, they increase often in richness at the crossing. We can give no good grounds for this with our present knowledge. Possibly, if formed by waters, there may be some chemical relations which cause it.

7. In the case of slips, the foot-wall generally has gone upwards, the hanging wall downwards.

Fig. II



wards. Some exceptions to this rule have been known, but it generally holds true. Fig. II will serve to show this.

8. The law of surface changes. This has been explained to a sufficient extent in the last lecture. [Given in the SCIENTIFIC PRESS OF Dec. 24, 1870.]

Old Theories of Mineral Veins.

There is probably no subject which has given rise to so many theories as that of the formation of mineral veins. There is now a widely spread popular prejudice against theories and theoretical men, and an invincible distinction is made between so-called "theoretical" and "practical" persons. This is partly right and partly pernicious. There are two kinds of theorizing:—that merely for the sake of theorizing and showing off one's mental agility, which has been only too common, and is rightly despised; and that which seeks only truth and truth only, which should be fostered. The prejudice is wrong in that it makes a distinction between true theory and true practice, which cannot be separated. It is just as impossible to have any truly practical science without theory, as it is to have any science without facts.

Until recently many of the wildest and most vague theories have preponderated. Some of these, which have obtained largely even among scientific men and publications up to the present day, may be mentioned here.

There has been a theory that veins were filled in the same manner as igneous dykes,—by the injection from below of melted matter. Another has been that, the fissures extending to the interior of the earth, matter below is volatilized and fills the veins with crystals on cooling. This first is the theory of igneous injection, the second is that of sublimation. Neither are true.

According to some, mineral veins are filled in the same way as veins of infiltration, explained in the last lecture. This is nearer the truth, as will be shown hereafter.

There has been a theory that the fissure were filled by solutions from which the metal were deposited by electrical currents. Now these currents do increase the tendency to crystallize and may have some influence. But the chief ground for this theory seems to be the popular tendency to refer the causes of natural phenomena to any imperfectly understood matter. Thus people attribute to electricity the earthquakes, table-tipping, etc., etc. To demand consideration for this theory, it is necessary for its supporters to show first that the phenomena follow those laws of electricity which are known. When this is done, the matter will be considered. But we stand in no need of any such theory.

The True Theory.

The true theory, in the lecturer's opinion, has been touched on in some of its relations in published works, but has not been made public in its entirety heretofore. It is this: That the fissures were filled by deposits from hot alkaline solutions circulating through them, even from the greatest depths. It is proposed now to show that the veins were filled

- I. From solutions;
- II. From hot solutions; and
- III. From hot alkaline solutions.

I. From solutions.—The peculiar structure, the ribbon structure, is as characteristic of mineral vein matter as the columnar structure is of basalt. This point tells very strongly against the fire theories and for the water theory. From the same cause we find the same structure in veins of infiltration.

Again, the most common of all vein-stones is quartz, which occurs nine times out of ten; yes, ninety-nine times out of a hundred. Now there are two kinds of quartz. One has a specific gravity of 2.8, the other a specific gravity of 2.1 to 2.2. The first is formed only by deposition from solution, the second only on cooling after fusion. The first is found invariably in metallic veins, while the second is never found there.

There are many other contents of mineral veins which cannot possibly be formed by fire, but only by water. These are the minerals containing water, the "hydrates."

In vein-stones, we very often find fluid cavities. In rocks formed by aqueous action, any such cavities contain water, while in those formed by the action of fire, the cavities contain only air. Vein-quartz, and all vein-stuff, have the fluid cavities (i. e. those containing water). This point tells against the sublimation theory as well.

II. From hot solutions.—A fissure reaching downwards is always filled with percolating waters. Now as our mineral veins extend down a great distance, these waters must be hot. The solvent power of hot (super-heated) water is well known. It dissolves many substances generally considered insoluble.

In the case, referred to above, of cavities filled with a fluid, if these were filled while hot and then cooled, as the containing crystals cannot give and the fluid contracts on getting cold, a vacuum space is left which presents the appearance of a bubble. This last we find a common occurrence. If we put such a crystal with such a cavity under the microscope, and apply heat, we can determine the temperature at which the crystal was formed; for on reaching this temperature, the fluid will have expanded to its original volume and will exactly fill the cavity, the bubble then disappearing. This fact opens a field of research of the greatest importance and interest. In this way it has been found that actual deposits have been formed at 150°, 212°, 250°, up to 400°, 600°, 800°, and 1000°. Now quartz and other vein-stuff have such cavities which have been shown to have been formed at 180° to 212° and even 300° and 400°.

It may be remarked that such cavities occur often in crystals, when, on account of the imperfect transparency or opacity of the material, they are not apparent.

III. From hot alkaline solutions.—We need a powerful solvent to get our vein-matter in solution. Our hot water probably is not sufficiently powerful. We find it in nature in an alkali,—a carbenate, particularly carbenate of soda. Alkaline waters and springs are known everywhere, and are especially frequent on our coast.

Quartz is one of the most insoluble substances known. Only a few substances will dissolve it. Its natural solvents are alkalies. In making artificial stone, etc., this fact is taken advantage of. Again, as the metal is enclosed in the quartz, we must believe that it was deposited from the same solution. It has been shown before that most metallic minerals occur in nature originally as sulphides. Now alkaline sulphides will dissolve metallic sulphides. These alkaline sulphides are abundant in springs in California and elsewhere. Most of the sulphurated-hydrogen springs derive their sulphur from these sulphides, this combining with the hydrogen.

More probably, however, the metals were in solution as sulphates, many of which are easily soluble. These coming in contact with organic matter (so common in nature), were then reduced to sulphides. Such reactions are occurring all the time under our eyes.

Application to California Veins.

A study of the veins of California and of the hot springs of this State and Nevada, has done much to put this theory on a solid foundation. Thus, the fact that gold, the most insoluble of all metals, is dissolved only in free chlorine, which doesn't exist in nature, has been the great stumbling block hitherto to the theory of solution. But the explanation of this can be found by examining the deposits on our coast.

The gold mines of California (and all gold mines) are of two kinds—quartz and placer. The first are on true auriferous veins, where the vein-stuff is invariably and almost entirely quartz. The minerals contained are sulphides of iron, lead, zinc and copper, and perhaps quicksilver. The most common is sulphide of iron, and the gold occurs always in connection with iron pyrites.

We have previously seen the evidences of our vein stone:—the ribbon-structure and the fluid cavities filled at 180° of temperature, and up as high as 350°. Now we must consider the metallic contents. As the metallic sulphides are enclosed in the vein-stuff, we must believe that these were deposited in the same manner as the gangue.

If we take sulphide of iron, gold-bearing pyrites, and dissolve it in nitric acid, we find the gold left untouched in the original state, and as little threads and crystals. It was then deposited from a solution. Now, in an ordinary quartz vein, the effect produced by us with the acid, has been produced by the meteoric agencies of nature, and the gold is found at the surface in the same shape. The quartz vein is denuded and the placer mines are formed, in which we find rounded blocks and boulders and rounded nuggets as evidences thereof.

We have two kinds of placers:—the deep and the superficial. The deep placers were formed in the beds of ancient rivers, as they existed many years ago. Then streams of lava poured down from the Sierras, and these naturally flowed into and along the river channels, covering the gold deposits and dispossessing the waters of their beds. The waters were forced to run elsewhere, and formed what are the present superficial deposits.

The accompanying diagram, Fig. III, shows an ideal section of land thus changed. The old river channels were at *a*, and the original contour of the land is denoted by the dotted lines. The gold deposits were formed at the deeper part of the channels, as shown by the black places. These were then covered with lava, and the rivers, forced elsewhere, gradually wore down the land and formed their present channels, *b*, often many hundreds of feet below their old ones; and so the deep placers are now often higher up than the superficial ones. These changes have occurred in the most recent geological times, possibly since man lived on the earth. Having exhausted our superficial placers, we are now commencing to work the deep ones to a considerable extent.

We find in the deep placers certain phenomena

na which advance our theory. We frequently find gravels cemented with silica, and we find also wood silicified. These circumstances were induced by soluble silicates, and point to alkaline waters.

Again, we find often gravels cemented with iron pyrites, and wood petrified with this material. Waters, holding sulphate of iron in solution, percolated through the drifts, and meeting the wood or other organic matter, deposited sulphide of iron.

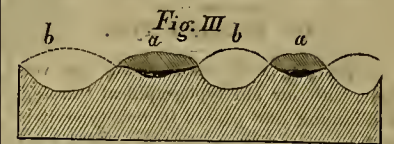
If we dissolve this sulphide of iron in nitric acid, we find the contained gold sometimes in the form of rounded granules. In this case, it was washed here, and then the sulphide formed around it. But we also find it as fine threads and crystals, as in veins, and therefore it was deposited from the same solution as the enclosing sulphide.

We are thus almost driven to the conclusion that the solvent was a solution of sulphate of iron. We enquire then—will this dissolve gold? We must remember in this connection the difference between the operations of the chemist and those of nature. The chemist calls a substance insoluble, if it is not dissolved to any considerable extent in a limited space of time. But nature has the infinite ages of geological time to work in. Hence, a substance dissolved only in very small part by the chemist, may be entirely dissolved by nature. Now, gold is soluble to a limited extent in solutions of salts of iron, mostly in chloride of iron, but to a smaller degree in the sulphate.

The action then is this: The alkaline and percolating waters dissolve the quartz, which is afterwards deposited in its present position. The sulphate of iron held in the waters dissolves the gold, and when organic matter is met, the sulphate is reduced to sulphide and, as such, is deposited with the gold.

A Present Example in Nevada.

This whole process is now going on, and we have a good example of it in the well-known "Steamboat Springs" of Washoe county, Nevada. Here, through fissures, some being 2,000 feet long, boiling alkaline waters issue from the earth. These waters, holding carbonate of soda, contain in solution silica which is deposited all around. The process of vein formation is



going on here, and we can trace every stage of gradation. Some of the fissures are merely lined on each side with the deposits, some are nearly closed the same way, and some are quite filled (no further water issuing from them consequently) and are just like our known mineral veins.

Here too are found iron sulphide and other metallic sulphides just as in a quartz vein, and it has been stated by a man of considerable scientific attainments, Mr. Lancer, that he has found gold in the pyrites here. This lacks further confirmation, but is still worthy of attention.

Some may ask, in this connection, where the iron sulphate comes from. We cannot go back to the origin of everything. We can only say that the sulphate comes from the sulphide and the sulphide from the sulphate, under oxidizing and reducing agencies.

And where does the alkali come from? From the soda granite of the Sierras. The soda granite is that granite which contains soda felspar. Soda granite is easily decomposed. In decomposition, the soda is changed to carbonate of soda, of which we have had so much to say. The waters leach out the soda carbonate (in small quantities at a time) and (for example) run into a lake. Many lakes, as Mono and Owens, having no outlet, their waters are concentrated by evaporation. The distilled water falls again on the granite, takes up more alkali and runs into the lake again, and in this way we in time get bodies of strong alkaline water.

There was a time when California was more volcanic than it is now; when hot springs, carbonate alkali springs, were almost everywhere; and thus the vein formation could have been carried on to a large extent, just as we see it done now in the present example.

The lecturer believed that this idea was the foundation of the true theory of the formation of veins. It may be, probably will be, modified and perfected as our knowledge increases, but the essential portion will remain.

Prof. LeConte closed his lecture with some eloquent remarks on true theorizing—the seeking for truth, which, however theoretical, is always practical. The application to practice, to be sure, does not always immediately follow the discovery of a law. One noted instance of long delay in the application is given by the case of the ancient mathematician, Apollonius, who, some 200 years before Christ, spent his life in studying the laws of the curves produced by cutting a cone in various directions. A man who should do such a thing now would be in danger of being sent to Stockton. Yet, after 1,800 years, the whole of our astronomy has come from these very studies. But in our present advanced state, the practical application follows fast on the discovery of the rule.

The professor concluded amid the hearty applause of his audience. This is the last of his series which has proved so attractive and instructive. The next lecture will be delivered by Prof. John Le Conte on the Vaporization and Elastic Force of Steam.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, Jan. 14, 1871.

Gold and Legal Tender Rates.

San Francisco, Thursday, Jan. 12, 1871.—Legal Tenders buying @90%; selling @91. Gold in New York to-day 10%.

Table of Contents.

New Smelting Furnaces; The Piltz Furnace, Ill. PAGE 17.
MECHANICAL PROGRESS.—Heat Radiation; New Artillery; Rubber Tires; Mobility of Copper in Silver Alloy; Little System of Telegraphy; McCracken Gas Process. 18.
SCIENTIFIC PROGRESS.—Deep Sea Mud; French Scientists; Amazon Expedition; Boston Museum; Hereditary Deformities; Haeckel's Nat. Hist. of Creation. 18.
Bound East, Ill.; Important to Tide Land Owners; Granular Fuel. 19.
MINING SUMMARY; Mining Share Market; Stockholders' Directory. 20-21.
AGRICULTURAL INDUSTRY.—Profits of Grape Growing; Pruning Grape Vines; Montana Irrigating Canal; Corn Husking, Ill.; Cal. Agricultural Notes. 22.
Theory of Mineral Veins, Ill. 23.
Mining During 1870; Important Mining Decision. 24.
Chronos, Ill.; Giant Powder Experiments, Ill.; Notices of Recent Patents. 25.
HOUSEHOLD READING.—High Heeled Shoes; Buckwheat Cakes; Curing Meat; Colds; Household Receipts; Mechanical Hints; Life Thoughts; Industry of Interest, etc. 26.
Woodward's Gardens, Ill.; Mining Observations. 28.

Our California Type.

In parting, at the close of our last volume, with our old typographical "dress," and issuing our papers in new type it is with pleasure that we can say a good word for the old font which served our use for four years, and received the praise of many readers for its plain, durable and easily read face. Cast by Messrs. Faulkner & Son, in 1866, it was the first font issued of California made type, and has worn better than any other body type we have ever used in a long period of printing and publishing experience.

Since the establishment of the above-named type-foundry on this coast, the business has increased very rapidly, until there are now three firms and about 100 persons employed in the business of making and furnishing type and printing materials in this city. The first and largest of these is the California Type Foundry Company, of which Mr. Geo. L. Faulkner is agent. This company has recently removed their salesroom and manufactory to more spacious and convenient apartments on the first and third floors of Nos. 405 and 407, Sansome street. Dealing with Mr. Faulkner since 1859, we will say, for the benefit of others of our fraternity, that we have ever found him both reliable and liberal. Lately, no less than four important inventions connected with type making and composing have been invented in this city, some of which will doubtless be introduced throughout the civilized world. Our type-founders and electrotypers number some of the most expert and experienced craftsmen in the United States, and there are but three or four cities in the Union where the business is so large and enterprisingly conducted.

NEW POST OFFICES have been established at Mono, San Luis Obispo county; Bell's Bridge, Shasta county; Munckton, Mono county; Felton, Santa Cruz county (special); Rumburgh, Siskiyou county (special); Ballard's, Santa Barbara county; Pleito, Monterey county; Potter Valley, Mendocino county; Ceres, Stanislaus county. The post office at Diamond Mountain, Nevada, has been discontinued, as no logner needed.

Mining During 1870.

A review of what has been done in mining during the past year and a consideration of the present prospects of this industry present a much pleasanter picture than was afforded a year ago. We have passed through hard times, have been terribly crippled by want of capital and confidence; yet these very troubles have been attended with beneficial results in many respects, and now that mining has passed successfully through the ordeal, it is again coming into popular favor and gaining the position which it deserves.

During the year many new discoveries have been made, and old workings have been successfully opened. Colorado has found new riches in Grand Island district and elsewhere, has gone more rationally to work in the treatment of her rebellious ores, has improved her mills, added smelting works, and utilized more fully her coal deposits. Montana has had her Cedar Creek, and Idaho her Snake River excitements, while many mines have been taken in hand, after lying idle, and made to pay. Utah has been surprising the country with her lead mines at the Cottowood cañons. Arizona has opened and re-opened a number of districts. From Eastern Oregon we have had reports of good workings in several localities. The coal mines along the Pacific Railroad have been developed. Nevada has been unusually fortunate. Austin and the Reese River country, so long at the lowest ebb, have revived. Humboldt, Esmeralda and numerous other localities are again coming up. The operations on Treasure Hill promise much for White Pine. The Meadow Valley mine, Ely District, has been yielding among the best. Yellow Pine and Clark districts are attracting attention. Mineral Hill and Eureka are doing splendidly. We might mention a dozen other places, in various states and territories, but our excuse—crowded columns—must again be given. We must refer to the series of interesting letters from W. H. M., written from Nevada, Utah, Idaho and Montana, and to our mining summary, which, compiled with the greatest care and fidelity in all cases has kept track of the important operations. Our neighbors up in British Columbia seem to have improved prospects to some extent; although the Peace River excitement appears to have proved a failure, yet, on the other hand, the Cariboo mines have good chances. So down in Mexico we hear of rich strikes, the latest being that at Chihuahua.

A number of important sales of mines have been effected to European capitalists. The Terrible and Equator, in Colorado, the Eberhardt and Aurora, in Nevada, the North Star and Sierra Buttes, in this state, were among the first and more important mines transferred to English companies. English capital commenced coming to us at a very dull period, and seemed to be an entering wedge which rendered the flow of capital much easier. At least since that time, money has been more plentiful for working mines.

Our deep placers in California are now beginning to yield up their treasures. Their extent and value have been slighted heretofore by people generally. But at Smartsville, Manzanita Hill, North Bloomfield, Grass Valley, etc., etc., operations are going on, or have been prepared for, which promise the most glowing returns. In this connection, we may be allowed to call attention to the letters of our correspondent, L. P. Mc., from the mountain counties, which give very many interesting facts. A party of the Geological Survey has been at work on the ancient river channels during the summer, and the result of their examinations will be of the most important and interesting character.

Smelting operations are carried on extensively, and are giving large returns. The Utah mines and those at Eureka deserve special mention here. Better furna-

ces are being built, and smelters are rapidly learning the best methods of treatment. The Eureka furnaces are said to produce 25 tons of bullion daily, although we are not informed certainly as to the exact figures. We cannot omit mention of the Inyo county operations, where smelting has been successfully carried on.

We gave some statistics last week of the ore and bullion shipments to this city. Since then we have obtained the amounts of ore shipped East on the Union Pacific Railroad during 1870. We cannot give a better idea, perhaps, of the growing production of our interior mines, than by stating these amounts; and we add those shipped over the Central Pacific for the same time. The bullion shipments, we are sorry to say, we have not received, and this important item we must therefore omit. It was 1,681 tons, 700 lbs. over the C. P. R. to this city.

	1870	Union Pacific.	Central Pacific.
January.....	3,441 tons.	170 tons.	
February.....	31 "	109 "	
March.....	95 "	119 "	
April.....	172 "	219 "	
May.....	204 "	308 "	
June.....	3,030 "	204 "	
July.....	611 "	524 "	
August.....	294 "	571 "	
September.....	724 "	318 "	
October.....	590 "	797 "	
November.....	541 "	751 "	
December.....	not rec'd	382 "	

Totals.....9,633 tons.....4,537 tons.
Grand total.....14,170 tons.
Besides the December shipments over the U. P. R. R.

The improvements in mining appliances have been great. For hydraulic mining, the improved hose and nozzles have enabled the miners to work with greater pressure and larger streams, thus effecting a remarkable economy. In place of, say, 250 inches of water with heads of from 100 to 150 feet, 1,200 inches of water with a head of 300 feet can now be thrown against a bank in a single stream. One man can now do the work of a dozen, and the rock thrown down is very much larger in amount. The expenses being thus reduced, poorer ground can be made to pay. Craig, Fisher, Harris, Watson and Hoskins have all patented devices, some of which are extensively used, and to which hydraulic mining owes much.

Three drilling machines have been brought out and tried here during the year, all of which have been described in the Press. The first was the Burleigh, a percussion drill, which has been at work in Colorado, and which has since been reported on most favorably in England and elsewhere. Severance and Holt's Diamond Drill, has been illustrated in our paper, and has accomplished wonderful results. For prospecting, it is in advance of any other. The third machine is that of Dr. Blatchly, a percussion drill, very simple, light, compact and cheap, which has done excellent work under our eyes. Dr. Blatchly has been engaged in making additions and alterations for years. Its feeding arrangement seems to act exceedingly well. One other point is especially worthy of mention. A great trouble in percussion drills is the jar resulting from the blow on the rock. Dr. B's drill is free at the moment of striking, its rear end is not in contact with any part of the machine, while there rebound, usually so destructive to the parts, is actually utilized here.

The agents for blasting have been improved. Giant Powder is being more extensively used, and this or some similar compound must be employed in very many operations.

In milling several improvements have been made. Our quartzmills are certainly not surpassed, probably not equalled, by any elsewhere. But yet the millmen can make some improvements. Thus there is considerable latitude in the rapidity of the blows, the size of the screens, etc. In cement mills, for instance, the substitution of quarter-inch for eighth-inch screens, have been found, we are told, to increase the capacity 25 per cent. without reduction in the yield. The Wilson mill has done exceedingly well in the Julian District and elsewhere. In concentrating appliances, we have still a large field open. Several new biddles have been described by us; as have also several pans, which are said to give better results than usual.

Of electricity and electrical methods we have been a little shy. But we think it would be highly unfair to omit mention of any process which gives good results, whatever the method used, or whatever our ideas may be. We have had letters from Montana and elsewhere which give figures to prove that Paul's electric process has been

tried thoroughly and has worked most successfully ores of a very rebellious nature, which had hitherto proved intractable under other methods.

In furnaces much has been done. The Stetefeldt furnace has been introduced into a number of places, and for working large amounts, is the most successful one we know of. For small amounts, the Bruckner cylinder gives good results, according to reports from Colorado. Improved smelting furnaces are to be seen at Eureka.

Transportation matters are so closely connected with mining, that we must refer to the extension of roads throughout our coast, leaving the particulars to appear in another issue. The introduction of narrow gauge roads seems to be a necessity here, and we rejoice at the steps already taken in the matter. The wire tramways at White Pine and in Colorado also deserve mention.

So much for a general, but brief review. With a better feeling with regard to laborer and employer, a better character of the operations, cheaper methods, and improved apparatus, and with huge amounts of precious metal yet to be extracted, our mining interests have the brightest prospects.

IMPORTANT MINING DECISION.—Last month a mining decision of considerable importance was pronounced in the Supreme Court, at White Pine, Nevada, in the case of Samuel Leet *et al.* versus the John Dare Mining Company, with regard to right of possession of certain mining grounds. It appears that the Dare Co., on June 8th, 1868, located a mine of 1,200 feet (six locators of 200 feet each), and within 40 days did two days' work on the entire claim. On Feb. 18th, 1869, Leet & Co. located 800 feet of the same claim, and within 40 days did at least two days' work for each 200 feet—claiming that the ground was open to re-location, because the former company did not do two days' work for each 200 feet. In a suit before the District Court, decision was pronounced in favor of the Dare Co., which decision is now reversed by the Supreme Court, Judges Johnson and Whitman.

A SHERIFF'S SALE AT WHITE PINE.—The White Pine News, of January 4th says: The White Pine Smelting Works were sold at sheriff's sale yesterday afternoon for the large sum of \$2,000, or \$1,500 for the personal property, and \$500 for the real estate. There were about 20 persons at the sale and only one of them made a bid. We have no doubt that if this sale had been properly advertised in the White Pine News, that moneyed people would have been there, and that the works might have been sold for what they really are worth. The idea of selling a 30-horse power engine, boiler, two smelting furnaces, assay apparatus, houses, etc., for \$1,500, is a little too steep to be passed by without comment.

THE STOCKTON AND COPPEROPOLIS Railroad Company has mortgaged the road to Milton S. Latham and Saxon D. Atherton for \$1,000,000. Track is being laid at the rate of half a mile per day. Negroes, but no Chinese are employed in its construction. —*Alpine Chronicle.*

BOUND EAST.—We commence this week a series of letters from our agent, W. H. M., who has started on a tour East. His first communication treats of the country on the line of the Union Pacific Railroad, of which road more will appear in our next.

THE CORN HUSKING GLOVES, illustrated to-day, can be seen at Weister & Co.'s, No. 17, New Montgomery st., San Francisco, under Grand Hotel. W. & Co. have also a large number of other useful novelties on hand now.

BET SUGAR AGENCY.—We would state that the samples of California beet sugar, mentioned by us last week, came from Messrs. Perkins & Flint, corner of Greenwich and Battery sts., general agents for the Alvarado manufacturing company. We believe the Company has been fortunate in the selection of their agency for this important and meritorious product.

An ocean cable, from New York to Liverpool direct, is now proposed. Possibly may be laid by next July.

Chromos.

The engraving which we print on this page is from the celebrated chromo-lithograph of Hill's Yosemite, a scene which has been painted at by every artist who has ever visited this coast and become familiar with the subject, either by visiting the valley or by the aid of the numberless photographic views from time to time brought out. But of all who have attempted the difficult task of reproducing in colors on canvas a general view of the valley (we believe this is conceded by every one conversant with art matters) no one has yet produced a picture of this beautiful scene which excels the one referred to. The best proof of this is the fact that the painting sold for a large price to a representative Californian, who is thoroughly conversant with the scene Mr. Hill essayed to portray.

It is true that many good, and some very fine, works of art have been produced, founded on the much-hackneyed Yosemite; but they were generally like the stories "founded on fact,"—a resemblance, but one rather difficult to trace. Now we need something more than a resemblance. Scant meed of praise would our Eastern friends award an artist of the present day who should paint Niagara Falls in any other manner than as the scene actually exists. To make a pretty picture, by taking liberties with nature and allowing the pencil to roam over the canvas wherever fancy dictates, is one thing; to portray nature upon canvas is quite another matter. The last only is true art.

Much has been written of late about chromo-lithography. Many suppose it to be an American invention and comparatively new. This is not so. The process has been in use nearly a century, and was first discovered in Munich, Germany. A knowledge of chromo-lithography would convince any one that it could not well have been invented in any other locality, seeing that all lithography is done upon a peculiar kind of stone found only in Bavaria in the neighborhood of Munich. Watt would have stood a poor chance indeed to have been the inventor of steam had he lived in a country where fire was unknown.

The advance of chromo-lithography, however, goes to show that not so much results from the invention as from adapting to the popular demand or taste. This last is what Mr. L. Prang, of Boston, has done. Facsimiles of paintings by this process are of no recent date; but the bringing out of popular subjects, executed in a superior manner, from the finest paintings, has made the United States not the cradle but the drawing-room of the art. In a future number we propose giving some reasons why we excel Europeans in this branch; and we shall from time to time print engravings from the most popular American chromos.

The chromo of Hill's Yosemite has met with good success on this coast, and all attempts to equal it have so far failed. It is the only chromo published by Prang which has been exclusively a subscription picture.

We have often heard laments that we have no public art gallery in this city. What public spirit has failed to produce, is supplied, however, to a great extent by private enterprise. There is a good collection, where one can profitably cultivate the finer sensibilities, at the establishment of Messrs. Snow & Roos (Goupil's depot), 21 Kearny-street. These gentlemen are the agents of Mr. Prang for this coast, and at their place, besides other artistic efforts, the choice productions of Prang & Co. can be seen. Those living at a distance can

benefit by the institution by sending for the catalogues and price lists, which are furnished free on application, together with engravings of some of the most popular chromos.

In regard to the engraving, a few words concerning the principal points indicated may be acceptable to those to whom the features of the place are not familiar. On the left hand, or north side, is El Capitan, or Tutucanula as the Indians call it, which rises up from the valley to a height of 3,600 feet. On the right hand are the cliffs on the face of which is seen the Bridal Veil Fall, about 1,000 feet in height. Behind this is a part of the Cathedral Rock, which rises up 3,000 feet. Further back, about the center of this picture, is



YOSEMITE VALLEY.

Sentinel Rock, with its obelisk, itself 1,000 feet high, rising up to over 3,000 feet above the level of the valley. Then comes the Half Dome, a crest of granite 4,737 feet high, and with the face toward Tenaya Creek absolutely vertical for 2,000 feet down from the summit; while in the background is seen North Dome, 3,568 feet in elevation above the valley. Add to these figures the elevation of the valley itself, 4,060 feet above the sea, and we get some respectably high figures.

Giant Powder Experiments.

The Giant Powder Company, of this city, instituted last Saturday several very interesting experiments at their works (on the Treat Tract, on the Central Road) at which a number of prominent citizens, gentlemen interested in mining and members of the press were present. The object was to show clearly that the article they manufacture is greatly superior and absolutely much cheaper for blasting and like purposes than common powder, and that its use is unattended with danger when ordinary care is exercised.

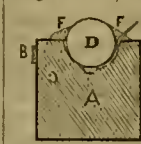
To prove the first point, comparative tests were made of the force of each article in projecting shot from a mortar. The mortar was elevated 45 degrees, and a 32-lb. cylindrical shot was fired by charges of blasting powder and of giant powder. Of this last the company manufacture two kinds:—"No. 1," the ordinary kind, according to Nobel's patent; and "No. 2," a weaker compound, (whose ingredients are not given) the property of the company, much cheaper than No. 1, and intended for use in certain kinds of rock where an excess of power is not required. No. 1. costs \$1 per pound, and No. 2, 50 cents.

In these experiments the charges were 8 grammes of each powder. The blasting powder threw the ball 17½ feet (mean of two experiments); No 2 giant powder, 410 feet; and No. 1 giant powder, 545 feet.

Next, the shot (now a 32-lb ball) was thrown vertically in the air from a mortar, whose bore was of sufficient dimensions

and shape to hold only the lower half of the shot, around which a loose packing of sand was poured. The charges were now 30 grammes,—about one ounce. The accompanying diagram will make the arrangement easily understood. A is the mortar, of cast-iron; B, a wrought-iron band, 1x4 inches; C, the chamber holding the charge; D, the ball; E, the fuse; F, the loose sand packing. The blasting powder merely blew out the packing; No. 2 threw the ball about 486 feet, and No. 1, about 788 feet up in the air. The time was taken by several gentlemen. The No. 1 charge also burst the band, B, around the mortar.

The horizontal fire gave, as the comparative projecting force of the mixtures, the proportion of 1 to 23½ to 30 ½. From the



vertical fire we can make no proportion, as the common powder did not even lift the ball out of the mortar. The distances to which the ball was thrown by No. 1 and No. 2 were as 1 to 1.6. These experiments show how much more powerful is the giant powder, and hence that, other things being equal, from the much greater work done, it must be a more economical agent. It seems to us that it must come into very extensive use, if the matter of attendant danger can be settled satisfactorily. The next experiment was to show that the powder cannot be exploded by fire, and that ordinary care will obviate all danger. The company claim that, in all the accidents known to them, the cause has always been simply carelessness, and never properly attributable to the powder.

A five-pound box of the giant powder, out of which about half a pound had been taken and exploded by fuse on a log, which it shattered to splinters, (this being done merely to satisfy all that the contents of the box actually were giant powder) was closed up, as when prepared for transportation, and placed in a fire of brush and twigs. When the box had been burned through, the powder caught fire and burned, like fire in pyrotechnic displays, without explosion. This proved conclusively that simple heat will not explode the mixture.

With the properties of nitro-glycerine, no one is yet fully acquainted. Yet the composure with which the officers of the company stirred up the fire in the last experiment, showed that they had not the slightest fear of danger from burning the giant powder (which they would perhaps term nitro-glycerine rendered harmless) and the result justified their confidence. In regard to accidents at factories, Mr. Bandmann said that the majority occurred by a desire to economize by saving the sulphuric acid, which after being used, is washed out from the manufactured nitro-glycerine. This is very apt to retain some of the nitro-glycerine, and hence the accidents. On this account, this company does not use further the acid which has been once employed. The nitro-glycerine once mixed with the other ingredients to form giant powder, no further danger is feared. A proper degree of caution, however, is never superfluous.

DIALOGITE, first found in this country in the works of the Schenectady-Tarshish mine, has made its appearance in the face of the Silver Glance tunnel this week, and some very pretty specimens taken out.—*Alpine Miner*, Dec. 17.

PATENTS & INVENTIONS.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

APPARATUS FOR COLLECTING PRECIOUS METALS.—J. M. McDougall, S. F. This is an improvement on the apparatus patented some three years ago by Mr. McDougall, which we have heard praised as most efficient in saving gold even after the ore had passed through the most approved gold-saving apparatus. This former invention, it may be well to state, consisted in using metallic standards placed in an ordinary

sluice, the bottom of which had been previously covered with amalgamated plates. The standards were, according to the patent, composed of copper and iron, by the combination of which metals a retaining amalgamating surface was presented and an electrical action induced, which would serve to collect and precipitate even the finest particles of gold or other metals. The present invention relates to an improved method of securing the copper in the (hollow iron) standards in firm contact with the iron; to the employment in the sluice of any square obstructions in place of the metallic standards, said obstructions being placed in a similar manner to that employed with the metallic standards, in order to impart to the water a rocking motion, by which the particles of metal are precipitated without the electrical influence; and lastly to coating the plates on the bottom of the sluice with gold or silver amalgam or the amalgam of some of the base metals, in order to give a heavier body of quicksilver with less fluidity. Mr.

McDougall has spent a long time in working and improving his apparatus, and has been very successful in his endeavors, if common report is to be credited.

DEVICE FOR EXHIBITING PHOTOGRAPHIC PICTURES.—A. G. Walton, S. F. This device is an excellent substitute for parlor albums, for it contains in a small space a large number of pictures, which are, moreover, protected, while they can be examined at pleasure. It consists of a small box in which the pictures or cards, after having been placed in suitable frames, are arranged horizontally in a pile, one above another. Two wheels, placed one at each end of the pile and driven from the same shaft, are provided with pins which, as the wheels revolve, take the cards or frames in succession from the bottom of the pile and carry them up to the glass window through which the pictures are viewed. After carrying them past this point, they drop them with their opposite faces downward upon the top of the pile, and thus, after the whole number of cards have been passed around and inspected on one side, they are again carried around in a similar manner with the opposite side to the front. In this way, each card having a picture on each side, two views are given for each frame in a most simple and ingenious manner. The device can be used with advantage also for exhibiting advertising cards.

MEDICAL COMPOUND.—A. J. Jenkins, Virginia City, Nev. This is a preparation which is said to be most effectual as a cure for rheumatism, and which, if substantiating this claim, must prove a great benefit to the very large army of rheumatic sufferers.

WORTH READING.—We call attention to the report, on another page, of Professor Joseph Le Conte's lecture on the theory of mineral veins. Prof. Le Conte treats of the subject in a most instructive and interesting manner, and his great ability gives of itself much weight to his propositions, which he, moreover, sustains by strong evidence. Prof. Le Conte has now concluded his series before the Mechanic Arts College, and will be succeeded by his brother. These lectures have been well attended, and there are many names now on the list for the first vacancies.

The kind letter from Mr. Almarin B. Paul, containing observations on our mining interests, is also worthy of perusal.

HOUSEHOLD READING.

High Heeled Shoes and Flat Feet.

Much, but not half enough is being said with regard to the high and small heeled shoes so generally worn by the ladies at the present time. A persistent use of such heels will destroy the beauty of the best formed foot, besides producing other physiological deformities and injuries.

A high heeled shoe, with the slender point usually given to it, cannot properly support the arch of the foot; but allows it to sink, whereby the bones and ligaments become stretched, weakened and displaced, and the foot becomes flattened and more elongated—in other words the person becomes flat-footed, and loses the elasticity and strength of step, and grace of motion which nature designed in the construction of the arch. People with high arched feet walk easier, more graceful and with much less fatigue than those with flat feet. A depression of the natural arch of the foot will often increase its length from a half to three quarters of an inch.

High heeled shoes weaken the ankles and place them in a condition to be easily "turned"—sprained, with the slightest misstep. The injuries sustained from their use, will be permanent, and productive of very disagreeable consequences in after life, not the least of which will be a premature tottering of age. There is neither beauty, nor comeliness nor comfort in the fashion, the effects of which are already plainly seen in the altered gait of many ladies which we meet upon the streets of this city. The natural elasticity of step is fast giving way to the tottering gait, so conspicuous in Chinese females. The heel, as usually worn, is at least twice as high as it should be, and the surface of the same not more than half what is required to give a steady and firm support to the person.

The Japanese and some of the Chinese, who follow a similar fashion in the manufacture of their shoe heels, have at least sense enough to make the heels broad, so as to give a comparatively firm tread, and prevent the straining and weakening effect produced upon the ankles by the "pointed" heels which seem to be so attractive to our American ladies.

LIVER AS FOOD.—We cannot too strongly denounce the use of liver and kidneys as food for man. These organs are constantly charged with the worn out, excrementitious matters of the system, the presence of which, when rightly understood, are disgustingly offensive to the taste. Their presence is evinced by the fact that these portions of an animal are always the parts first subject to decomposition. They make very good food for hens and dogs; but for man—never!

HOW TO REMOVE HAIR FROM THE PERSON.—A correspondent asks the *Herald of Health* how hair can be removed permanently, and remarks, "I have been told to pull it out; but it grows in about as fast as I pull it out." The *Herald* answers as follows: "The least injurious way is to continue pulling it out, until the glands about the root become so weakened as to be unable to replenish it. Two or three times pulling it out will be sufficient with some, while others may have to repeat it half a dozen times or more."

HUSBANDS ought to "keep out of the kitchen." A husband who did not, writes thus of the consequences: "I found fault, some time ago, with Maria Ann's custard pie, and tried to tell her how my mother made pie. Maria made the pie after my recipe. It lasted longer than any other pie we ever had. Maria set it on the table every day for dinner, and you see I could not eat it because I forgot to tell her to put in any eggs or shortening. I was economical, but in a fit of generosity I stole it from the pantry and gave it to a little boy in the neighborhood. The boy's funeral was largely attended by his former playmates. I did not go myself."—*Western Home*.

Buckwheat Cakes—Are they Wholesome?

It is very common to class buckwheat cakes, in reference to digestibility, with "flannel cakes," which are made of wheat flour; but they differ materially. There is an instinct that gives relish to buckwheat in cold weather, which is explained by the fact that that description of flour gives out more heat to the body, while wheat gives more nutriment and less heat. The stomach will bear a greater quantity of buckwheat, for it is lighter and spongy, and the gastric juice readily permeates the pulpy mass and gives it easy digestion. It cannot assume the doughy toughness that makes wheaten cakes so hard to digest. To mix wheat-flour with buckwheat, is to take away the best properties of buckwheat cakes. No other cake can be eaten hot from the griddle without injurious effects akin to those of hot bread. While buckwheat cakes are undoubtedly wholesome, their deficiency of gluten requires that we do not make our meals exclusively of them.

In California we produce buckwheat of superior quality, and on Sherman Island, for instance, three crops a year can be grown. Now this meal is peculiarly suitable to the people of the Bay district, at all seasons. Heat-making food is never objectionable in that locality, and we eat meat enough to supply all the strength we need. Buckwheat cakes, not alloyed with wheat-flour, are therefore healthful here, and in all cool climates, at all seasons, when taken in moderation.

POISONED TARLATAN.—A lady in Berlin bought six yards of green tarlatan for a ball dress for her daughter. The mother, who assisted in making the dress, and the daughter who wore it, at the same time fell dangerously sick and had a narrow escape from death. The medical adviser of the family at once discovered poisoning by arsenic. The green dress was chemically analyzed, and it was found that the coloring contained thirteen per cent. of arsenic. The merchant was summoned before the criminal court; but he was acquitted, for the reason that he could prove he had advised the purchasers of the poisonous quality of the color used to tint the tarlatan.

CURING MEAT.—At this season of the year the thoughts of almost every farmer naturally turn more or less to the processes of curing meat for the winter's use. Most farmers have a pig or two to salt down, and some have mutton or beef, and the quality of the meat which is to furnish food for the family, will depend a good deal on the way in which it is cured. There are various modes of curing meat, but one of the best, perhaps, is that suggested by the *Germantown Telegraph*, which is as follows:

To one gallon of water, take one and a half pounds of salt, half a pound of sugar, half an ounce of saltpetre, half an ounce of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together until all the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cold, pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to answer well; though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar.

If this receipt is properly tried it will never be abandoned. There is none that surpass it, if so good.

HOW TO CURE A COLD.—The *Herald of Health* says:—Upon the first indication that you have taken a cold. Stop eating until the cold is eased; drink freely of cold water; induce a free perspiration over the whole body, either by exercise, vapor or hot water bath, or by going to bed and covering up warm; breathe all the pure air you can. In most cases a cold will yield to this treatment in 12 hours, or at most in 24.

Household Receipts.

HOW TO COOK DRIED BEEF.—Place the beef, nicely shaved off, in a frying-pan, with butter enough to fry it; let it fry until a little browned, then sprinkle in dry flour, as much as you would take were you going to mix it with water; let it brown but take great care not to burn it. When browned sufficiently, add cream or milk enough to make a gravy; let it boil a few moments, add a little butter and pepper and it is done.

Some very frequently boil eggs and cut them up lengthwise, and lay them around on the meat after it is poured on the platter. This makes a very pretty and palatable dish, and with some nice mashed potato, and sweet potatoes and tomatoes with sugar, and just a trifle of vinegar poured over them, supplies a very good breakfast.

Another way to cook dried beef is to cut up a sausage in slices and fry until there is enough fat tried out to fry the meat; then put in the beef, and proceed just as for frying in butter, using water instead of milk or cream for the gravy. This gives an excellent flavor unless sausage is disliked.

TO MAKE SAUSAGES.—Thirty pounds of chopped meat; eight ounces salt; two and one-fourth ounces pepper; two teacups of sweet marjoram. Pass the two last through a fine sieve. If you prefer it, thyme and summer savory may be substituted for the latter.

SODA BISCUITS.—One pound of flour, two tea-spoonfuls of cream of tartar into the flour dry; dissolve the soda in a little milk; wet the whole with milk, making it sufficiently stiff to mould into biscuits.

INDIAN CAKE.—One cup Indian meal with one pint of milk, two eggs; one table-spoonful sugar, a piece of butter the size of a walnut, half a tea-spoonful of soda. Bake half an hour.

CREAM PIE.—One cup sugar, one egg, piece of butter size of an egg, one tea-spoon soda dissolved in a cup of sweet milk; add to this, when mixed together, two tea-spoons cream tartar rubbed in three cups of flour, and bake in three jelly cake tins.

The Cream for the inside of the Pie.—One one-half cups milk; when boiling add seven tea-spoons cornstarch, wet with cold milk; let it scald a moment, then add two well beaten eggs; sweeten to taste, and flavor with lemon or vanilla.

Split the cakes when cold, spread them with the cream, and put together again like jelly cake.

A PINK-COLORED PANCAKE.—Boil a large beet root tender, and beat it fine in a marble mortar, then add the yolk of four eggs, two spoonfuls of flour, and three spoonfuls of good cream, sweeten it for your taste; grate in half a nutmeg and put in a glass of brandy; beat them all together half an hour; fry them in butter, and garnish them with green sweetmeats, preserved apricots, or green sprigs of myrtle. It is a pretty corner dish for either dinner or supper.

Mechanical Hints.

TO FIX DRAWINGS AND DESIGNS.—It may be useful to designers and others to know that pencil and chalk drawings can be set by washing them over with water in which isinglass or any colorless size has been dissolved; it may be necessary, after the first coat is dry to go over it with a second coat. When this wash is perfectly dry, the work may be varnished with one or two coats of a white spirit varnish, or what is perhaps preferable, a varnish of equal parts of Canada balsam and spirits of turpentine; this last varnish will produce a beautiful gloss and possesses the advantage of being able to stand washing with soap and water. It will be found necessary to apply the isinglass solution very gently, and not go over any part a second time until the first coat shall be perfectly dry, otherwise the lines of the work may be disturbed. It is also necessary to keep the work from the dust, or particles may adhere to the lines and mar the beauty of the work; care must be taken to have the brushes perfectly clean.

HOW TO TREAT A BURNING CHIMNEY.—**SALT FOR EXTINGUISHING FIRE.**—If it is desired to extinguish the fire in a chimney which has been lighted by a fire in the fireplace, shut all the doors of the apartment so as to prevent any current of air up the chimney, then throw a few handfuls of common fine salt upon the fire, which will immediately extinguish the same. The philosophy of this is, that in the process of burning the salt, muriatic acid gas is evolved, which is a prompt extinguisher of fire.

A SEA-WEED, belonging to the same genus as the Irish Moss found abundantly on the coast of France, is now used in that country for clarifying beer, as being much more economical, and better suited to the purpose than gelatin.

Life Thoughts.

Not to hear conscience is the way to silence it.

One hour to-day is worth two to-morrow.

You never lose by doing a good turn.

The beauty of holiness, like the sun, is seen by its own light.

Slander injures threefold—him that utters, him that is attacked, and him that hearkens.

Virtue shines, though contemptibly clad, and is recognized and respected by noble minds.

A man that hoards riches and enjoys them not is like an ass that carries gold and eats thistles.

There is no such thing as a menial office when you put a true man into it. A menial office is an office with a mean man in it; and it makes no difference whether it is a king's office or a scavenger's office.

Hope is the last thing that dies in a man, and although it may often deceive us in the journey of life, yet it conducts us along an easier and more pleasant path to our journey's end.

Cherish thy mother; brief, perchance, the time may be that she may claim the care she gave.

Depend upon yourself; riding upon the shoulders of another is dangerous and foolish. If you are not cast off into a disagreeable place, you may be let down in a very ugly manner, when you least expect it.

To be free from desire is money; to be free from the rage of perpetually buying something new is a certain revenue; to be content with what we possess constitutes the greatest and most certain of riches.

WHENEVER you buy or sell, let or hire, make a clean bargain, and never trust to "We shan't disagree about trifles."

CONVERSATION is the daughter of reasoning, the mother of knowledge, the breath of the soul, the commerce of hearts, the bond of friendship, the nourishment of content and the occupation of men of wit.

VALUE no man for his opinion, but esteem him according as his life corresponds with the rules of piety and justice. A man's actions, not his conceptions, render him valuable.

No cause has ever been noble enough wholly to enoble fight, for selfishness has always been one of the chief impelling forces.

The Industry of Interest.

No blister, says Beecher, draws sharper than interest does. Of all industries none is comparable to that of interest. It works all day and night, in fair weather and foul. It has no sound in its footsteps, but travels fast. It gnaws at a man's substance with invisible teeth. It binds industry with its film, as a fly is bound in a spider's web. Debts roll a man over and over, binding hand and foot, and letting him hang upon the fatal mesh until long-legged interest devours him. There is but one thing on a farm like it, and that is the Canada thistle, which swarms new plants every time you break its roots, whose blossoms are prolific, and every flower the father of a million seeds. Every leaf is an awl, every branch a spear, and every plant like a platoon of bayonets, and a field of them like an armed host. The whole plant is a torment and vegetable curse. And yet a farmer had better make his bed of Canada thistles than to attempt to be at ease upon interest.

Be Social at Home.

BE SOCIAL AT HOME.—Let parents talk much and talk well at home. A father who is habitually silent in his own house, may be in many respects a wise man; but he is not wise in his silence. We sometimes see parents, who are the life of every company which they enter, dull, silent, uninteresting at home among the children. If they have not mental activity and mental stores sufficient for both, let them first provide for their own household. Ireland exports beef and wheat, and lives on potatoes; and they fare as poorly who reserve their social charms for companions abroad, and keep their dullness for home consumption. It is better to instruct children and make them happy at home, than it is to charm strangers or amuse friends. A silent home is a dull place for young people—a place from which they will escape if they can. They will talk or think of being "shut up" there; and the youth who does not love home is in danger.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

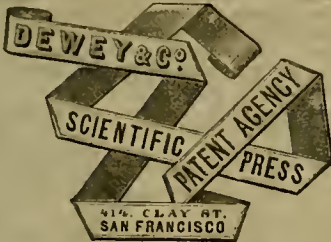
W. H. MURRAY—Eastern States.
A. H. HERRING—California.
L. P. MCCARTY, California.
E. M. DEWEY, California.
A. C. KNOX, City Soliciting and Collecting Agent.

SUBSCRIPTION RATES.

CASH IN ADVANCE.—One year, \$4; six months, \$2.50; single copies, 10 cents; Monthly Series, \$1.50 per annum; Quarterly Series (stiff paper binding) \$3. (On Quarterly series, and papers sent to foreign countries an additional sum must be added for advance postage.)

ADVERTISING RATES.

One-half inch..... 1 week, 1 month, 3 months, 1 year.
One inch..... \$1.00 \$3.00 \$6.00 \$20.00
Two inches..... 2.00 5.00 10.00 30.00
Three inches..... 3.00 7.00 15.00 45.00
Four inches..... 4.00 9.00 20.00 60.00
Five inches..... 5.00 11.00 25.00 75.00
Six inches..... 6.00 13.00 30.00 90.00
Seven inches..... 7.00 15.00 35.00 105.00
Eight inches..... 8.00 17.00 40.00 120.00
Nine inches..... 9.00 19.00 45.00 135.00
Ten inches..... 10.00 21.00 50.00 150.00
Eleven inches..... 11.00 23.00 55.00 165.00
Twelve inches..... 12.00 25.00 60.00 180.00
MISCELLANEOUS ADVERTISEMENTS will be inserted at special rates less than one-half the cost of daily publication.



THE MASONIC MIRROR

Is the only Masonic Publication on the Pacific Coast. The Second Volume is published weekly, in the popular and beautiful form of a

QUARTO-MEDIUM SIXTEEN PAGE PAPER

AND IS A FIRST CLASS

Literary and Family Newspaper,

AS WELL AS THE

Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. & A. M., of the State of California, at its Annual Communication, October, 1870.

Whereas, in the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the MASONIC MIRROR, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said Masonic Mirror to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the MASONIC MIRROR, published in this city be the official organ of this Grand Consistory.

TO ADVERTISERS.

The Mirror presents the best Advertising medium on the Pacific Coast, as it circulates in every town and hamlet, and among a class of citizens that it will be of advantage to advertisers to reach.

Rates of Advertising.

One Square of ten lines, or less, 1 time..... \$1.00
One Square per Month..... 2.00
Quarter Column, "..... 5.00
Half Column, "..... 10.00
One Column, "..... 20.00
Office, 608 Market St., San Francisco 19v21-1f

I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, \$5. Delivered in the city per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

(TO BE PUBLISHED SHORTLY.)

'A Synopsis of British Gas Lighting.'

300 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of reference among

Companies,
Manufacturers,
Engineers.

Patentees, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be addressed to the Compiler,

JAMES R. SMEDBERG,

Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

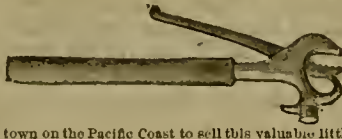
26v21-1f

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



town on the Pacific Coast to sell this valuable little

This device is just what its name indicates. As a KITCHEN Tool it is indispensable. It will fit and lift with perfect safety any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pry bar, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pry bar and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every

P. Davis' Wire and Picket Fence.

Although about a hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.

New Gas Light.



This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufacturing cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

WIESTER & CO.,
17 New Montgomery Street, (Grand Hotel), San Francisco.

Travelers' Guide.

Central Pacific Railroad.
Time Schedule, December 5, 1870.

EASTWARD.		Express Train Daily.	Passenger Sunday excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	4:00 P.M.	5:30 P.M.
Oakland	"	8:40 A.M.	4:40 P.M.	"
San Jose	"	9:15 A.M.	5:15 P.M.	"
Stockton	"	12:00 P.M.	8:30 P.M.	4:15 A.M.
Sacramento	Arrive	1:50 P.M.	"	4:15 A.M.
Sacramento	Leave	2:10 P.M.	"	9:00 A.M.
Marysville	Arrive	4:00 P.M.	"	1:15 P.M.
Chico	"	5:10 P.M.	"	5:25 P.M.
Colfax	Leave	5:25 P.M.	"	5:30 P.M.
Reno	"	1:15 A.M.	"	5:35 A.M.
Winnemucca	"	8:10 A.M.	"	10:15 P.M.
Battle Mountain	"	12:00 M.	"	3:10 A.M.
Carlin	"	4:40 P.M.	"	10:00 A.M.
Elko	"	4:40 P.M.	"	12:30 P.M.
Kelton	"	1:35 A.M.	"	7:30 A.M.
Ogden	Arrive	6:10 A.M.	"	4:00 A.M.

WESTWARD.		Express Train Daily.	Passenger Sunday excepted.	Mixed.*
Ogden	Leave	5:45 P.M.	"	5:15 P.M.
Kelton	"	10:35 P.M.	"	7:05 P.M.
Elko	"	8:45 A.M.	"	5:15 P.M.
Carlin	"	10:15 A.M.	"	10:00 P.M.
Battle Mountain	"	1:25 P.M.	"	9:00 A.M.
Winnemucca	"	4:05 P.M.	"	10:00 A.M.
Colfax	"	1:00 A.M.	"	11:10 P.M.
Chico	"	4:45 A.M.	"	11:30 P.M.
Marysville	Leave	6:55 A.M.	"	10:00 A.M.
Sacramento	Arrive	8:10 A.M.	"	2:30 P.M.
Sacramento	Leave	11:25 A.M.	"	5:15 P.M.
Stockton	Arrive	11:45 A.M.	7:00 A.M.	7:30 P.M.
San Jose	Arrive	5:35 P.M.	5:32 A.M.	11:20 P.M.
Oakland	"	5:15 P.M.	11:55 P.M.	"
San Francisco	"	6:00 P.M.	12:35 P.M.	8:30 A.M.

*Through Tickets to all Principal Cities in Europe for sale at the Company's Office.

Local Trains.		A.M.	P.M.
3:30	Leave SAN FRANCISCO.	arrive	9:40
3:20	"	"	9:30
4:40	Leave NILES.	"	8:15
5:35	Leave SAN JOSE.	leave	7:45

Visalia Div.		P.M.	A.M.
4:00	Leave SAN FRANCISCO.	arrive	12:35
7:35	"	"	8:50
9:05	Leave MODESTO.	leave	7:15

From SAN FRANCISCO.		From OAKLAND.	From ALAMEDA.	From HAYWARDS.
B 6:50 A.M.	"	B 5:35 A.M.	"	B 5:25 A.M.
8:00 " "	"	B 6:50 " "	"	B 6:40 " "
9:00 " "	"	B 8:00 " "	"	B 7:50 " "
D 10:00 " "	"	D 9:00 " "	"	D 8:50 " "
D 11:00 " "	"	D 10:00 " "	"	D 9:50 " "
D 12:00 P.M.	"	D 11:00 " "	"	D 10:50 " "
2:00 P.M.	"	2:00 P.M.	"	11:50 " "
4:00 " "	"	4:00 " "	"	2:50 P.M.
5:15 " "	"	5:15 " "	"	4:10 " "
6:45 " "	"	6:45 " "	"	5:10 " "
B 11:30 P.M.	"	B 6:40 P.M.	"	B 6:40 P.M.
From SAN FRANCISCO.	"	From ALAMEDA.	"	From HAYWARDS.
B 7:20 A.M.	"	B 4:42 A.M.	"	B 3:45 A.M.
E 9:00 " "	"	B 7:35 " "	"	B 7:00 " "
F 9:30 " "	"	B 8:06 " "	"	B 8:30 " "
E 11:30 " "	"	B 9:36 " "	"	B 9:00 " "
1:30 P.M.	"	E 11:36 " "	"	E 11:00 " "
4:00 " "	"	1:35 P.M.	"	3:25 P.M.
5:30 " "	"	4:05 " "	"	"

B Sundays excepted. E Sundays only. D To Oakland only. C To Fruit Vale only. A. N. TOWNE, General Superintendent. T. H. GOODMAN, Gen'l Passenger and Ticket Ag't. Sae.



The following time will take effect

Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Callista.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A.M.	12:45 A.M.	12:30 A.M.	2:15 P.M.
4:00 P.M.	8:15 P.M.	8:20 P.M.	9:30 P.M.

ON SUNDAYS.

8:30 A.M.	12:30 P.M.	1:30 P.M.	6:00 P.M.
-----------	------------	-----------	-----------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train Leave Marysville.	Trains Leave Callista.	Trains Leave Sacramento.	New World Arrives S. Francisco.
6:00 A.M.	7:30 A.M.	7:15 A.M.	10:30 A.M.
1:30 P.M.	2:30 P.M.	2:15 P.M.	7:30 P.M.

ON SUNDAYS.

10:15 A.M.	3:30 P.M.	2:30 P.M.	7:00 P.M.
------------	-----------	-----------	-----------

Tickets for sale at 315 Montgomery street, or on board steamer New World. R. S. MATTHEWSON, Superintendent. N. B. Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf. L. C. FOWLER, General Freight and Passenger Agent. Vallejo October 1, 1870. 19v20-1f

AGENTS WANTED FOR

Zell's New Encyclopedia.

This work, the Best, the Latest, and the Cheapest ever published. It is not only a

COMPLETE ENCYCLOPEDIA.

Freshly written, and up with the times, but is also a thorough and complete

Lexicon, a Gazetteer of the World, a

Biographical, Biblical, Legal and Medical Dictionary.

And the only book ever published containing all these subjects, with 2,000 Engravings. This really wonderful work is to render readily accessible reliable information on every conceivable subject. No human being could be found to whom it would not prove invaluable. It minutely describes every disease flesh is heir to; explains every legal term or phrase; gives the geography of the entire world; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names

One of our Parks.

Woodward's Gardens, one of the first places shown to travelers visiting our city, have been called by some the "Central Park of the Pacific." Whatever name may be given to these grounds, they certainly deserve and have received the highest praise and admiration, and we propose giving a brief description of their prominent points for the benefit of those of our readers who have not been able to visit them in person. We have several "breathing-holes" at present in our city, and hope at some time to have a large park; but exactly when, no one can say.

Mr. R. B. Woodward, one of the wealthiest and most liberal of our citizens, laid out these gardens in 1860 as private grounds around his residence. Possessed of a refined taste, and of adequate means to gratify this taste, he spared no expense in beautifying them. They are provided with choice plants, both foreign and native, a museum and several conservatories were built, and a trip to Europe was taken in 1861 by the proprietor with the special view of supplying these last. In selecting works of art, he was aided by Bierstadt and Virgil Williams, both of whom contributed to his Art Gallery. The garden statuary was produced by sculptors of Carrara Italy, expressly for Mr. Woodward.

As the various additions were made, and the gardens grew in beauty, their fame spread far and wide, and many came to see them. The beautiful plants and strange trees, the fine buildings with their novel architecture, the ponds and mossy rocks, the roar of the wild beasts, excited the curiosity of persons, to the most of whom the picket fence formed an impassible barrier. The proprietor was strongly urged to open his place to the public. There was a great need of some such public garden. It would serve to instruct the many to whom no opportunity was otherwise given of harmless and improving amusement. Mr. Woodward had always been most hospitable in allowing his friends free use of the grounds. He listened to the broader proposition and consented so far there to as to open them for a time, early in 1866, for the benefit of the Sanitary Fund. A commencement having thus been made, they were definitely made public in May of the same year, a trifling admission fee being charged to defray the expense of keeping everything in proper order.

The gardens cover four acres of land, between 13th and 14th and Market and Mission streets, and about an acre south of 14th street, this last constituting an amphitheater and being connected with the other portion by a tunnel under 14th street. The gardens contain level ground and elevations, the walks are graveled and meandering, the grassy sward is dotted with every variety of flowering vines and shrubs, with trees of different climes. The lake is decorated with a margin of lilies and by large colored globes of glass, mounted on posts, which heighten the general effect. Pandora, Jupiter, Bacchus, Venus, Ceres, Terpsichore, Psyche and the "Dancing Girl," in marble forms, are found here and there in quiet nooks. A rustic fountain spouts by the side of the stream flowing into the lake, and benches and chairs invite to rest.

On the hill, in a grove of dwarf oaks, are the saloon and restaurant, with the platform for the band, and the observatory. On the side of the hill is an arbor built after the fashion of a Turkish mosque. The main building fronts on Mission street, and the lake is in the rear of this. There are five conservatory and plant houses, of

an aggregate length of 300 feet and an average width of 30 feet. The engraving gives a correct representation of the principal one, and will serve to give an idea of a small part of the beautiful grounds. There are, besides, a hennery, a pigeon-house, and a grapery. A gymnasium is fitted up for those fond of athletics. A rotary boat, schooner-rigged, capable of seating a hundred persons, floats around in the lake.

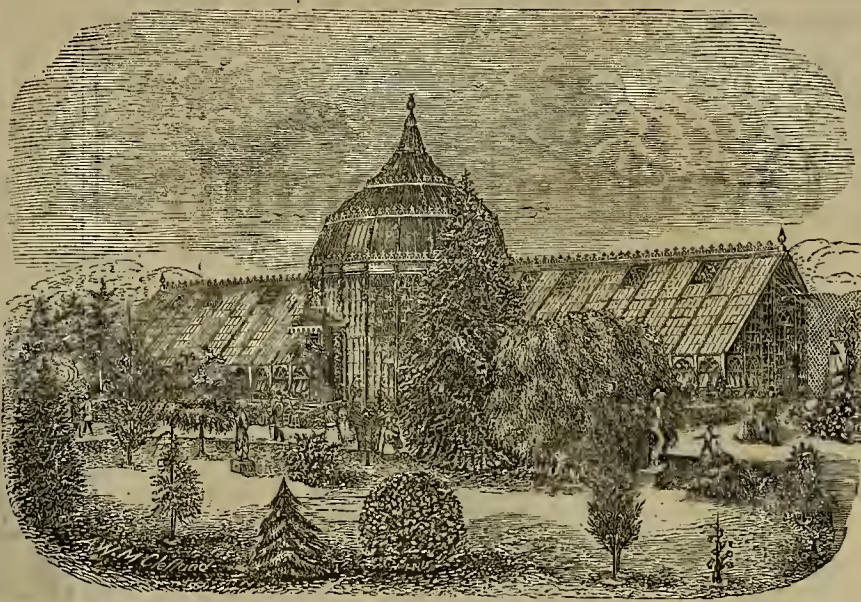
The Art Gallery contains some seventy oil-paintings of merit and two marble busts, one by Hiram Powers. In the adjoining Museum of Miscellanies are two statues, a collection of birds and birds' eggs, one of upwards of a thousand coins of all ages and nations, idols, weapons, minerals and hundreds of other articles. The library contains 1,600 volumes, many of them very rare and costly. The collection of alcoholic specimens is quite extensive. There is another collection of stuffed birds of the highest value, which is exquisite in its colors and varieties.

The Zoological Department is very extensive, and a catalogue of the animals would of itself occupy a large share of our space. Here are animals of various kinds from all countries and all zones. The col-

The rink will be built on ground now outside of the garden and will be in the shape of an L, with sides, each 125 feet long, and of a width of 40 feet. In the angle formed by the two sides there will be a circus ring, and back of this, extending from the wing of the rink to the other, terraced seats will be arranged to accommodate several thousand persons. In the rear of the seats, there will be an orchestra-stand.

Other additions are contemplated. All varieties of pure breeds of poultry will be kept on exhibition; there is to be an aquarium, so that the finny tribe may be more largely represented, etc., etc. It requires now several visits to get a decent idea of what is to be seen, and at the present rate of increase to the attractions, one will soon be obliged to make frequent and periodical calls to keep up with the times.

It may well be imagined that these gardens represent a large amount of capital. A million of dollars would not replace their contents were they destroyed. The expense of keeping the grounds and buildings in repair, of attending to the plants, and feeding and caring for the animals must be very large. Woodward's Gardens are now an important and indispensable feature of our city. They are visited daily



CONSERVATORY OF PLANTS AT WOODWARD'S GARDENS, SAN FRANCISCO.

lection is by far the largest on the coast and is continually being increased. The cages of the live animals always attract a large crowd, while the stuffed collection is hardly less interesting. There are California grizzlies, Oregon panthers, Mexican panthers, South American Jaguars, and Bengal tigers. Camels from Arabia, dogs of the Esquimaux, and kangaroos from Australia are found here. Deer and elk, badgers, racoons, marmots, foxes, weasels, ant-eaters, opossums, black and brown bears, monkeys of all sizes, and very many other animals live in close proximity. Pheasants, turkeys, quails, ducks, geese and chickens, eagles, sparrows, cranes, doves and canaries, of various breeds and hues and from countries remote and near, are confined in cages. Besides all these, which are alive, there are stuffed specimens of bears, snakes, tigers, leopards, hyenas, boars, apes, monkeys, etc.; double-headed, double-bodied and double-tailed calves and horses, etc.; while curiosities and monstrosities of all kinds, alive and dead, swell the catalogue.

The Zoological Department has just been removed into the amphitheater, which is as before stated, on the south side of 14th street. In this amphitheater, which will accommodate 10,000 persons, exhibitions are being continually given—at present a hippodrome forming an attractive feature. The lumber for an extensive skating rink has been purchased, and this additional attraction will shortly be given.

by large numbers of residents and sojourners, and we may therefore be allowed to call the place "one of our parks." They are a public benefit to the city, especially to children and to the poorer classes, and to Mr. Woodward are due the hearty thanks of our population.

A Kind Letter—Our Mining Interests.

EDS. PRESS:—With a host of others interested in mining, I can but congratulate you on the advantage certainly to be gained by a division in the PRESS of the two interests—Mining and Agriculture; and the mining community as well, because they will unquestionably find their pursuit better protected, and material more to their liking. The same may be said by those whose interest is that of agriculture. The two, though of the greatest importance, are conducted by such dissimilar spirits, that what suits one branch fails to entertain the other.

It is now to be hoped, since you propose to give a journal especially devoted to mining, mechanics and science, that it will receive the earnest support of every one interested in our advancement in these respects.

It is a fact patent to all, that no one can publish journals for the fun of it. Like other pursuits, it must have its rewards, good advocates, and material of value. There must be as much interest manifested on one side as the other. The public must do their duty to the journal, by extending its circulation and pecuniary interest, and

the journal must do its duty to the public by giving the best material that time and money can obtain; and as this is the beginning of 1871, and the mining interest is looking up, I am in hopes to see all who can, lend a hand.

So much for the PRESS,—more than intended, when I started out, which was to make some

Observations on the Mining Interests, and on California. That California, and San Francisco especially, wants a good raking down to get the conceit out of, and more industry in her, all who study statistics must agree. For the past three years at least, mining and mining operators have had the scorn of capital; and through neglect have been decider too much by our leading journals, especially those of San Francisco. And why? Because San Francisco was the "Front Door of Creation," consequently, real estate was all that was worth having. And what is now the result? They killed the goose that was laying the golden egg (mainly all that was making real estate hold its value), and now we find a gloomy showing for this interest, in an array of figures truly surprising for sensible people; as follows:

Real estate sales for 1870.....	\$15,680,000
Mortgages on sales, recorded 1870.....	13,872,000

Leaving as cash surplus.....	\$1,808,000
Twelve months' int. on mortgages at 1 per ct. ..	1,664,640

Leaving on a fifteen million transaction only..	\$143,360
---	-----------

as surplus for 1870. "Every dog has his day," is a rough sentence, with considerable meaning in it. It is coming the miners' turn now. This \$13,000,000 on real estate, with 1 per cent., to say nothing about old mortgages coming due, with their 1 and 1½ per cent. interest, has got to be paid. Wheat won't do it; can't do it. Real estate profits cannot do it. And as only gold and silver will answer the purpose, more attention must be, and is going to be, given to mining; and it is to be supposed the miner will look out for his reward for all his "toil and trouble" in waiting for "the good time coming, boys." It is coming; but for us to get the full benefit, that San Francisco and the Pacific States should have, we must look closer to our interest, by affording in our city ample facilities for treating the minerals and metals of the coast, and thus put a stop to this shipping ore and bullion by millions to Europe and, as it will be probably this year, to Omaha, Chicago and St. Louis, to say nothing of those works likely to be built in Utah. These localities are putting forth their energy and capital to a remarkable degree, to cope with which will require considerable of both capital and energy from San Francisco; and, as you well observed in your last issue, it does not want any small sum, but a capital of from \$250,000 to \$500,000 for the purpose. San Francisco's self-interest demands activity, as offers have been made from the East for base bullion at figures which are likely to draw vast amounts eastward, especially should there be any reduction in railroad freights.

Let it be as it may, let us go to work and build up our mining interest in all its various branches. The cry of hard times can soon be changed, if great activity is exercised in this interest. The whole Pacific country never was so prosperous as when we were mining most,—my friend Hopkins to the contrary notwithstanding.

ALMARIN B. PAUL.

San Francisco, Jan. 15th, 1871.

WORTHY OF COMMENDATION.—A telegram from Sacramento, on the 9th inst., reads as follows: "S. J. Nathan is putting up a public drinking fountain, such as are used in the East, in front of his store, corner of Third and K streets. Basins are used to supply horses and dogs, and cups for the use of humans. It is the first of the kind in California, and is ornamental as well as useful." Such an action is worthy of imitation. In these practical days, people are apt to look out too much, but with too limited a range, for themselves. We hope that Mr. Nathan may find a speedy reward, both mental and pecuniary.

IMPROVED.—A telegram from Omaha states that the bridge over the Missouri, at that place, is completed, and that trains are now crossing regularly. This obviates the necessity of the slow and unpleasant transfer by ferry-boat, which was liable at any time to stick on a fresh bar, and will be welcomed by travelers. The permanent railroad bridge of the U. P. R. R. is still far from completion.

PHOTOGRAPHS.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos 23 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.

UT14-6m B. F. HOWLAND.
BLOK TIN and SOLDIER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street.

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14V20

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the 'Theobroma' they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home-paths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 15V2-7

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Advertisements.

HYDRAULIC CHIEF.

Fisher's Knuckle Joint and Nozzle is the best Hydraulic Machine in use. Machines manufactured to order to throw from one to seven high steam. Hydraulic Mines, Dredges, etc. The notice published by H. H. & J. G. G. that they have sales pending in the United States District Court, which involves the working principle of my HYDRAULIC CHIEF, is false. I caution all miners to beware of the reports of the said Court proceedings and of any person claiming to have a patent for my Hydraulic Chief, granted Dec. 20th, 1870. No. of Patent, 10,422.

2V22-1ms F. H. FISHER, Nevada City.

EVERETT HOUSE,
Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amusement.
The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,
are within one block. The house is NEATLY and ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the
Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.
BYRON A. BALDWIN & CO., Proprietors.
2V22-4clmms

TRAVIS & WAGNER!

AGENTS FOR
Dufour & Co's,
Celebrated Dutch
Anchor Brand Bolt-
ing Cloths; Smit
Machines; Bran
Dusters; Mill Picks;
Mill Picks dressed;
Millstones repaired
rebuilt and balanced.
MANUFACTURERS OF
French Burr Mill
Stones, Portable
Mills of all sizes,
Corn, Barley, Feed
Salt, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz.
from 16 to 36 inches, for grinding Corn, Barley, Feed
Salt, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz.
2V22-1yins 41 First st., San Francisco.

FROM THE WEED
\$65 Sewing Ma-
chine—the
WHOLE WORLD
being judges—as they
are the LATEST, and
are BEST! Why?
Because the WEED
Machines TO
work easily and
quietly, and with more
AIDITY. Buy the
LATEST! Call
and see S. E. Hunt, 329
Kearns St. S. F., Ast.

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer of his coast.—*Neo. Transcript.*

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book Keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable to send for circulars, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 2V22-3mms



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any shoe before introduced.
Bolthoff's Steam Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late
improvements.
Send for prices and information. Address
C. F. HENDRICE, Pres't, R J. CORY, Sec'y & Treas.
1v22-3m4cs Council Bluffs Iowa.



Pain is supposed to be the lot of our poor mortals, as inevitable as death itself and liable at any time to come upon us. Therefore it is important that remedial agents should be at hand to be used in an emergency, when the seminal principle lodged in the system shall develop itself, and we feel excruciating agonies of pain or the depressing influence of disease. Such a remedial agent exists in the PAIN KILLER, whose fame has made the circuit of the globe. Amid the eternal ices of the polar regions or beneath the intolerable and burning sun of the tropics, its virtues are known and appreciated. Under all latitudes, from the one extreme to the other, suffering humanity has found relief from many of its ills by its use. The wide and broad area over which this medicine has spread, attests its value and potency. From a small beginning, the Pain Killer has pushed gradually along, making its own highway, solely by its virtues.
Such unexampled success and popularity has brought others into the field, who have attempted, under similarity of name, to usurp the confidence of the people and turn it to their own selfishness and dishonesty, but their efforts have proved fruitless, while the Pain Killer is still growing in public favor.

A NEW PATENT.
If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

Business Cards.
JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, N. Y. York, Etc.
No. 612 MERCHANT STREET. 5V20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2V21-3m
Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Farmers and Mechanics
BANK OF SAVINGS.
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 15V16-3m

GILES R. GRAY. JAMES M. HAYEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner Call
for the Alameda street, between
SAN FRANCISCO.
2V16

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. 2V20-10
STEVENSON STREET, near First, Pioneer Mills. 25V19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS.
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southeast cor. Sansome),
15V12-3m SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS and MODELS.
(Over W. T. Garrett's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6V14U SAN FRANCISCO

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25V19

THOMPSON BROTHERS,
EUREKA FOUNDRY.
and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT and HEAVY CASTINGS,
of every description, manufactured 24V16r

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whales
Lins constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

Mining and Other Companies.

Owing to the time necessary to mail the present large
edition of the SCIENTIFIC PRESS, we are obliged to go to
press on Thursday evening—which is the very latest
hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company,
Sierra County, California.

Notice is hereby given, that at a meeting of the Board
of Trustees of said Company, held on the 27th day of
December 1870, an assessment of fifty cents per share
was levied upon the capital stock of said Company, payable
immediately in United States gold and silver
coin, to the Secretary.
Any stock upon which said assessment shall remain
unpaid on the 27th day of January 1871, shall be deemed
delinquent, and will be duly advertised for sale at public
auction, and unless payment shall be made before,
will be sold on Monday the 13th day of February 1871,
to pay the delinquent assessment, together with costs
of advertising and expense of sale. By order of the Board
of Trustees. J. M. BUFFINGTON, Sec'y.
Jan7 Office, 37 New Merchants Exchange.

Continental Silver Mining Company—Location
of Works, near Hamilton, White Pine County,
Nevada.

Notice is hereby given, that at a meeting of the Board
of Trustees of said Company held on the 31st day of
December 1870, an assessment of (\$1) one dollar per share
was levied upon the capital stock of said Company, payable
immediately to the Secretary at the office of the
Company, 302 Montgomery street, San Francisco Cal., in
gold coin of the United States.
Any stock upon which said assessment shall remain
unpaid on the 6th day of February 1871, shall be deemed
delinquent, and will be duly advertised for sale by auc-
tion, and unless payment shall be made before, will be
sold on Wednesday the 22nd day of February, to pay the
delinquent assessment, together with costs of advertis-
ing, and expense of sale. By order of the Board of Trust-
ees. H. H. BLAKE, Secretary.
Office 302 Montgomery Street, San Francisco Cal. Jan7

Kincaid Flat Mining Company, Tuolumne
County, California.

Notice is hereby given that at a meeting of the Board
of Trustees of said Company, held on the 12th day of
January 1871, an assessment of \$2.50 per share was levied
upon the capital stock of said Company, payable im-
mediately in United States gold and silver coin, to the
Secretary, 220 Clay street, San Francisco, Cal.
Any stock upon which said assessment shall remain
unpaid on the 16th day of February, 1871, shall be
deemed delinquent, and will be duly advertised for sale
at public auction, and unless payment shall be made
before, will be sold on Saturday the 4th day of March
1871, to pay the delinquent assessment, together with
the costs of advertising and expenses of sale. By order
of the Board of Trustees. D. H. CROWE, Sec'y.
Jan14 Office, 220 Clay st., San Francisco.

I. X. L. Gold & Silver Mining Company.
Location of Works Silver Mountain Mining District
Alpine County, California.

NOTICE.—There are delinquent upon the following de-
scribed stock on account of assessment levied on the
18th day of Oct. 1870, the several amounts set opposite
the names of the respective share-holders, as follows—
Names. No. Certificates. No. Shares. Amount.
Gomer Evans.....335 90 \$90 00
G. W. Cuddihy.....338 2 2 00
Donald Davidson.....324 15 15 00
Arch Carmichael.....142 5 5 00
Arch Carmichael.....230 10 10 00
A Wagner.....388 2 2 50
Christian Helms.....387 2 2 50
Louis Blanding.....237 28 28 00
Henry Eno.....301 3 3 00
Henry Eno.....327 7 7 00
Henry Eno.....334 19 19 00
F. F. Gibson.....270 12 12 00
Walter J. Gardiner.....398 20 20 00
Walter J. Gardiner.....399 20 20 00
Walter J. Gardiner.....400 20 20 00
Walter J. Gardiner.....401 10 10 00
John Bolt.....381 10 10 00
D. C. Biddell.....258 10 10 00
R. K. Love.....129 12 12 00

And in accordance with law, and an order of the Board
of Trustees, made on the 18th day of Oct. 1870, so many
shares of each parcel of said Stock as may be necessary
will be sold at public auction by Olney & Co., Auction-
eers, 502 Montgomery street, San Francisco, California,
on Tuesday the 31st day of Jan. 1871 at the hour of 12
o'clock M., of said day, to pay said delinquent as-
essment thereon, together with costs of advertising and
expenses of sale. J. CROWNSHIELD, Secretary.
Office, Pioneer Hall (upstairs) 808 Montgomery street,
San Francisco, California. Jan14-3t

Jennie A. Consolidated Mining Company,
White Pine County, Nevada.

Notices is hereby given that at a meeting of the Board
of Trustees of said Company, held on the 31st day of De-
cember 1870, an assessment of ten cents per share was
levied upon the capital stock of said Company, payable
immediately in United States gold and silver coin, to the
Secretary.
Any stock upon which said assessment shall remain
unpaid on the 6th day of February 1871, shall be
deemed delinquent, and will be duly advertised for sale
at public auction, and unless payment shall be made be-
fore, will be sold on Monday the 27th day of February
1871, to pay the delinquent assessment, together with
costs of advertising and expenses of sale. By order of
the Board of Trustees. J. M. BUFFINGTON, Sec'y.
Office, Room 37 New Merchants Exchange, San Fran-
cisco, California. Jan7

Ophir Copper, Silver and Gold Mining
Company—Location of Works, Ophir Placer County,
California.

Notices is hereby given, that at a meeting of the Board
of Trustees of said Company, held on the 11th day of
December A. D. 1870, an assessment of forty cents per
share was levied upon the capital stock of said Company,
payable immediately, in United States gold coin to the
Secretary, at the Company's office, No 314 California St.,
San Francisco, California.
Any stock upon which said assessment shall remain
unpaid on the 6th day of February 1871, shall be
deemed delinquent, and will be duly advertised for sale
at public auction, and unless payment shall be made be-
fore will be sold on Monday the 27th day of Feb. 1871,
to pay the delinquent assessment, together with costs of
advertising and expenses of sale. By order of the Board
of Trustees. R. G. BRUSH, Secretary.
Jan7 Office No. 314 California Street.

Placer Gold Mining and Canal Company—
Location of Works, Placer County, California.

Notice is hereby given, that at a meeting of the Board
of Trustees of said Company, held on the fourth day
of January 1871, an assessment of \$5.00 per share was
levied upon the capital stock of said Company, payable
immediately in United States Gold coin, to the Sec-
retary at his office 24 Post Street, San Francisco Cal.
Any stock upon which said assessment shall remain
unpaid on Wednesday the fifteenth day of February,
1871, shall be deemed delinquent, and will be duly ad-
vertised for sale at public auction, and unless payment
shall be made before, will be sold on Saturday, the 11th
day of February 1871, to pay the delinquent assessment,
together with costs of advertising and expenses of the
sale. By order of the Board of Trustees.
C. S. HALEY, Secretary,
Jan14 Office, 24 Post St., San Francisco, Cal.

St. Patrick Gold Mining Company—Loca-
tion of Works, Ophir District, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board
of Trustees of said Company, held on the 27th day of
December, 1870, an assessment of one dollar (\$1) per
share was levied upon the capital stock of said Com-
pany, payable immediately, in United States gold coin,
to the Secretary, at the office of the Company No. 402
Montgomery street, San Francisco, California.
Any stock upon which said assessment shall remain
unpaid on the 1st day of February 1871, shall be
deemed delinquent, and will be duly advertised for
sale at public auction, and unless payment shall be
made before, will be sold on Monday, the 20th day of
February, 1871, to pay the delinquent assessment, to-
gether with costs of advertising and expenses of sale.
By order of the Board of Trustees.
T. F. CRONISE, Secretary.
Jan7 Office, No. 402 Montgomery st., San Francisco.

Washington Mining Company.—Location
of Works and Mine, Mariposa county, State of Cal-
ifornia.

Notice is hereby given, that at a meeting of the Board
of Trustees of said Company, held on the 12th day of
December 1870, an assessment of \$3 per share was levied
upon the capital stock of said Company, payable im-
mediately in United States gold coin, to the Secretary
at the office of the Company, No. 205 Front atset, San
Francisco.
Any stock upon which assessment shall remain un-
paid on the 16th day of January 1871, shall be deemed
delinquent, and will be duly advertised for sale at public
auction, and unless payment shall be made before, will
be sold on Monday the 6th day of February, 1871,
to pay the delinquent assessment, together with costs
of advertising and expenses of sale. By order of the
Board of the Trustees
T. D. WINGARD, Secretary.
Office, 205, Front street, San Francisco, California.

Shareholders Meeting.
OFFICE EAGLE CO. SILVER MINING COMPANY,
San Francisco, January 7th, 1871.

In accordance with a resolution adopted at a meeting
of the Trustees of the Eagle Quicksilver Mining Com-
pany duly held on the 4th day January 1871, a special
meeting of the shareholders of said company is hereby
called to be held at the office of the Company No. 302
Montgomery street, Room No. 5, San Francisco, Califor-
nia, on Monday the 23d day of January 1871, at the hour
of 2 o'clock P. M., of said day, to elect two Trustees to
fill vacancies in the Board, and for the transaction of
such other business as may lawfully come before it.
1v22-2vins WM. H. WATSON, Secretary.

Complete Volumes—Bound or unbound—of the
SCIENTIFIC PRESS from Jan. 1, 1864, to date, can be had
at reasonable rates at this office. They contain much
valuable information.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES.

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NELSON,
MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
14-1
SACRAMENTO CITY

ESTABLISHED 1851.
PACIFIC IRON WORKS,

First and Fremont streets, 1

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,
MARINE AND STATIONARY,

IRON AND BRASS CASTINGS
Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.

18-20-3m GODDARD & CO

EUREKA FILE WORKS.

311



Bet. Fremont and
Beale,

MISSION ST.,

SAN FRANCISCO.

T. G. DURNING, Superintendent.
New Files of every description made to order. Files
re-cut and warranted equal to new. Reaper and Mower
sections, bars, etc., made to order at short notice. Orders
from the country promptly attended to. 22v22tf

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one of
the safes, containing Miller & Haley's hooks and pa-
pers, stood the test perfectly,—to whom all interested
are referred. This safe is built at the

CALIFORNIA TOOL WORKS,
143 Beale Street, bet. Mission and Howard. All kinds of
Edge and other Tools made to order. Agricultural ma-
chinery repaired. Jobbing and polishing by steam.
All work warranted. Orders promptly attended to.
22v22-3m J. WEICHBART, Proprietor.

McAFEE, SPIERS & CO.,
BOILER MAKERS

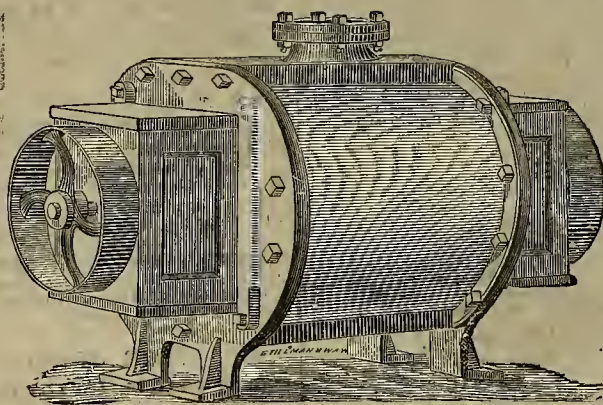
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco.
2v21-1f

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

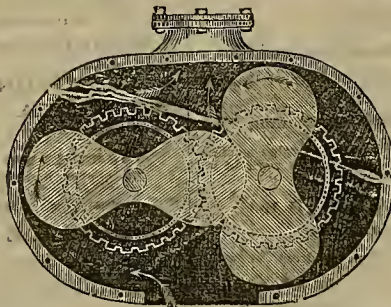
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.



Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.

ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
Now in use.

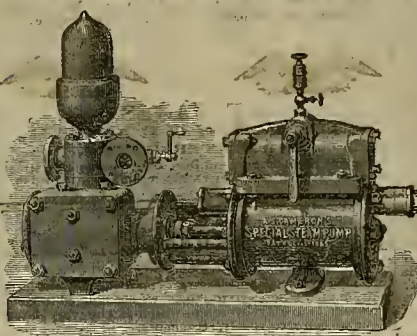
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Connec-
tions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.

J. H. WEED, V. KINGWELL.

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,
Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to
keep on hand a full supply of Transits, Levets, Com-
passes, Solar Compasses &c. Manufacturers of Young's
celebrated Shifting Tripod for Transits. Original ma-
nufacturers of Burt's Solar Compass. 14v21-2m

MACHINERY
—AT—
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN.
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.
At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 6v19-gy

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14gr

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.



MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOO S.

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

The Risdon Iron and Locomotive Works,

WATER PIPES,

—FOR—

Cities or Mining Purposes,

CAN BE HAD AT THE

RISDON IRON AND LOCOMOTIVE WORKS.

San Francisco.

They have just completed 70,000 feet of 30 inch pipe,
maximum pressure 375 feet, 12,500 feet, 900 feet head;
9000 feet 925 feet head, and 5000 feet of 22 inch pipe 300
feet head.

THE MACHINERY

—FOR—

Shearing, Punching, and Riveting,

—HAS BEEN—

Expressly Designed

for working Iron for pipes, and enables such work to be

Done Cheaper and Better,

than with ordinary machinery.

The Risdon Iron and Locomotive Works,

Are prepared to contract to make and lay pipe of any
dimensions, and over depressions of any depth,

GUARANTEEING THE SAME.

The Risdon Iron and Locomotive Works,

Also do all kinds of

Iron Foundry Work, Steam Engines,
Quartz Mills and Mining Machinery.

LOCATION OF WORKS,

S. E. Corner Beale and Howard Streets.

1v22-4clm

LEA & PERRINS'
Worcestershire Sauce.

Declared by Connois-
seurs to be the only good
SAUCE. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire Sauce" to their
own inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask for LEA
& PERRINS' SAUCE, and see that their names
are upon the wrapper, labels, stopper and
bottle.

Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have
been forged, L. and P. give notice that they have furnished
their correspondents with power of attorney to take in-
stant proceedings against manufacturers and vendors of
such, or any other imitations by which their right may
be infringed.

Ask for LEA & PERRINS' Sauce and see name on
wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worces-
ter; Crosse and Blackwell, London, &c., &c., and by
Grocers and Chemists universally. Agents, CROSS
& CO., San Francisco. 1v22-lyeow

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10,
1870.—Messrs. Dewey & Co: Don't stop my paper. Your
journal is very valuable. No better investment for \$4.
Respt. B. C. B.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.

CHAS. W. RAY,
No. 139, 3d Street, S. F.
AGENTS—MORRIS & WHITE, 30, Fremont, St. S. F.

NEVADA METALLURGICAL WORKS,
19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHARDT.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay Office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.

26v21-3m

CALIFORNIA ASSAY OFFICE
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE, Manager.
J. A. MARS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3mLOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.

11v21-3m.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE

On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

HENRY G. HANKS,
Assayer and Chemist,
AND DEALER IN
Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.MANGANESE.
For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide.
Apply to
J. BLUXOME,
20v21-3m N. E. cor. California & Sansome streets.Baltimore Copper Company.
Highest Price paid for Copper, Ore, 15 pr. ct.
Regulas, and Bars.DANIEL MEYER, 210 Pine Street,
23v21-3m SAN FRANCISCO.

NOTICE.
THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

GEO. W. SMILEY,
24v21-3m 424 Montgomery st., San Francisco.

MILLER & HALEY'S MILLS,
BERRY STREET,
Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, moldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.

19v21-3m MILLER & HALEY,

R. H. McDONALD & CO.,
WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure Drugs, Chemicals and Medicinal Extracts, Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are
Particularly Requested
to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3mins S. W. Cor. Market and First streets.

Swamp Land Reclamation.

California Peat Company,
OWNERS OF THE
Roberts' Steam Ditching Machine,
are now ready to take contracts. They are prepared to construct
Ditches and Levees.
of any desired dimensions. Terms easy. Address,
J. B. TOWNSEND, 636 Clay Street.
P. O. Lock Box, 814.
23v21-1m

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.
A. N. COLEMAN, President.
R. N. VAN BRUNT, Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-9y

YALE LOCKS.
SECURITY.
FULL SIZE OF KEY,
BEST & CHEAPEST.
FOR SALE BY THE

HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS,
POST OFFICE LOCK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOCKS,
UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.
OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.
Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

Machinery.
The Stetefeldt Furnace.

For information of any description respecting this
process,
APPLY TO
STETEFELDT FURNACE COMPANY.
STETEFELDT FURNACE COMPANY,
Duncan's Building, Room 1, California Street,
14v21-1y San Francisco.

WOODWORTH PLANERS.

Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BARRY & PLACE,
112 and 114 California St., San Francisco.

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 313 CALIFORNIA STREET, San Francisco. 25v20-3m

Miners, Look to Your Interests!

SAVE EXPENSE.

Use the most economical working machinery for crushing your ores.

The Wilson Patent
STEAM STAMP MILL

IS AN
IMMENSE SUCCESS.
NO MINER STUDYING HIS INTERESTS WILL USE ANY OTHER MILL.

It costs a great deal less than any other mill and does its work for from twenty-five to fifty per cent. less expense.

The Wilson Steam Stamp Mill
CRUSHES ONE TON PER HOUR

HARDEST QUARTZ,
THROUGH THE ORDINARY SCREENS.

One of these mills now being used as custom mill,

AVERAGED,
On Rock from Twenty-two Mines,
Twenty-eight Tons Per Day.

It uses about three cords of wood for twenty-four hours.

Is all complete when it leaves the shop, and weighs about 6,500 pounds, and can be put in operation in one week after it reaches the mines.

THE COST
of this mill all complete, including boiler, pump, setting and everything in complete running order at the mine is

NOT OVER ONE HALF
THE EQUIVALENT
OF ANY OTHER MILL.

These mills have now been in practical operation for nearly three years, and have proved in point of

Durability, Economy and Efficiency,
TO HAVE
NO EQUAL.

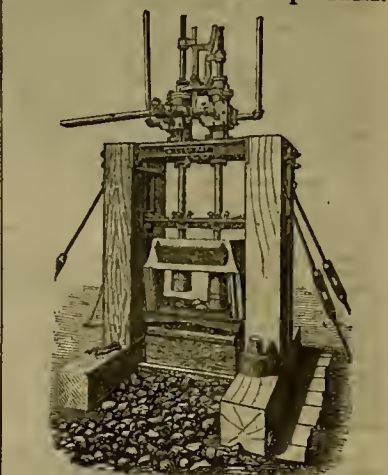
It requires no skill to run them and any one of ordinary abilities can set them up. The success of these mills having been so unprecedented that we now

GUARANTEE THEM

to be all that we claim for them and guarantee all repairs for twelve months.

One of these Mills can be seen at the Pacific Iron Works.
For further particulars address,

FURMAN R. WILSON,
San Francisco.
OR
Wilson Steam Stamp Mill Co.,
326 Walnut street, Phila., Pa.

THE WILSON
Patent Steam Stamp Mill.

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enormous popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.
Or of THE WILSON STEAM STAMP MILL CO., 926 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.
P. R. WILSON,
20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

STEAM JET PUMP.
Blakely & Williams' Patent, for
Water, Oils, Acids, Etc.

The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.
We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.
Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Francisco; KEEF & BARGION, Stockton. 21v21-1f

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.
For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.
Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.
Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the
San Francisco Plating Works,
655 Mission Street, Between New Montgomery and Third Streets, San Francisco.
E. G. DENNISTON, Proprietor.
HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold.

Leather Market Report.
[Corrected weekly by Dolliver & Bro., No. 109. Post st.]
SAN FRANCISCO, Thursday, Jan. 12.

SOLE LEATHER.—The demand is good and the stock on hand light, on account of heavy shipments to the east. Prices rule firm. We quote:
City Tanned.....26 @29
Santa Cruz.....25 @31
Country.....25 @28

CALF AND KIP SKINS.—French stocks continue scarce and high on account of the lack of exportation from French ports which has almost entirely ceased. We quote:
Best French Calf Skins, 3 doz.....75 00@100 00
Common French Calf Skins, 3 doz.....35 00@ 75 00
French Kips, 3 doz.....1 00@ 1 30
California Kip, 3 doz.....60 00@ 80 00
California Calf, 3 doz.....1 00@ 1 25
Eastern Wheel Stuffed Calf, 3 doz.....80@ 1 00
Eastern Bench Stuffed Calf, 3 doz.....1 10@ 1 25
Sheep Roans for topping, all colors, 3 doz 8 50@ 13 00
Sheep Roans for linings, 3 doz.....5 50@ 10 50
California Russet Sheep Linings.....1 75@ 5 50
HARNESS LEATHER, 3 doz.....33@ 40
Fair Bridle, 3 doz.....4 50@ 4 75
Saddling, 3 doz.....30 00@ 50 00
Wet Leather, 3 doz.....30 00@ 50 00
Buff Leather, 3 foot.....22@ 26

OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the Scientific Press. We transact every branch of Patent business, and obtain Patents in all civilized countries. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most reliable advice as to the patentability of new inventions. ADVICE AND CIRCULARS FREE. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior. ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

**SPORTING,
MINING,
And BLASTING
POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the forces of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

Notice.
To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES
OF
George O. Whitney & Co.,
Nos. 31 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

**GIANT CEMENT.
GIANT CEMENT.**

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimony. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

**MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.**

1st Regular No. Ready,
OF THE
PACIFIC RURAL PRESS.

SUBSCRIBE! GET UP CLUBS!

Farmers, Horticulturists, Sericulturists, Stockmen, News dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.
Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO.
Publishers, Patent Agents, and Engravers,
414 Clay Street, S. F.

**JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.**

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

**OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.**

Cash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

**THE BEST PAPER
—AND THE—
BEST INDUCEMENTS!**

This Quarter's 13 numbers sent FREE to all subscribing before Dec. 25, 1870, for next year's

MOORE'S RURAL NEW-YORKER,
THE GREAT ILLUSTRATED
Rural and Family Weekly.

This is not only the Largest, Best and Cheapest, but by far the Largest-Circulating Journal of its Class! National in Character, Ably Edited, Superbly Illustrated and Printed, it is the

BEST AMERICAN WEEKLY!

It is the standard authority on all branches of Agriculture, Horticulture, &c. As a Literary and Family paper it is a favorite from Canada to California. Indeed MOORE'S RURAL has no rival in its sphere, and is the largest illustrated Journal on the continent—each number containing Sixteen Five-Column Pages, (double the size of most papers of its class).

A NEW FEATURE.

Among recent accessions to the RURAL's unequalled Editorial staff is that of Hon. T. HART HYATT, of Cal., as editor of the Pacific Coast Department—a new and valuable feature. By prompt mailing and rapid railroad transit, the RURAL now reaches the Pacific slope about the time of its date.

TERMS, INDUCEMENTS, ETC.

TERMS—\$3 a year of 52 Numbers, and only \$2.50 in clubs of ten. This Quarter's 13 numbers sent FREE, as offered above. Our club inducements for 1871 are unprecedented. Specimen Premium Lists, &c., sent free to all forming clubs,—and we want a live Club Agent in every town. Address
D. D. T. MOORE,
1v22-4ts 41 Park Row, New York.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
25 Bond street, New York.
Platinum Scrap and Ore purchased. 5v20-1v16p1

**THE NEW TYPE
ON WHICH
THE SCIENTIFIC PRESS
is printed, is from the
CALIFORNIA TYPE FOUNDRY,
405 and 407 Sansome St.,
GEO. L. FAULKNER, Agent.
1v22-3mins**

**VICK'S
FLORAL GUIDE
For 1871.**

THE FIRST EDITION OF ONE HUNDRED AND FIFTY THOUSAND copies of **Vick's Illustrated Catalogue of Seeds and Floral Guide**, is published and ready to send out—100 pages, and an Engraving of almost every desirable Flower and Vegetable. It is elegantly printed on fine tinted paper, illustrated with Three Hundred fine Wood Engravings and Two beautiful

COLORED PLATES.

The most beautiful and the most instructive Floral Guide published. A GERMAN EDITION published, in all other respects similar to the English.
Sent free to all my customers of 1870, as rapidly as possible, without application. Sent to all who order them for Ten Cents, which is not half the cost. Address
JAMES VICK,
Rochester, N. Y.

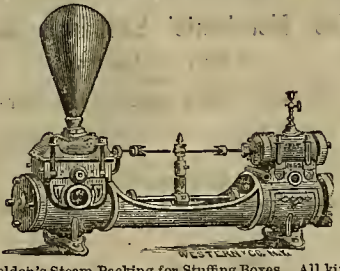
**Pacific
Insurance Company.**
No. 422 California St.,
San Francisco.

Cash Assets \$1750,000.

**Fire
and Marine
Insurance.**

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

**A. L. FISH, Agent.
KNOWLE'S PATENT STEAM PUMPS.**



Seldons Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3q816p

PAPER-BOATS.

Have been rowed by the winners of NINE races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OAKMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada,
besides much other information of interest to oarsmen. Every one interested in boat or rowing should have a copy. For catalogue, circulars and price list, address
WATERS, BALCH & CO.,
23v24-3m 303 River Street, Troy, N. Y.

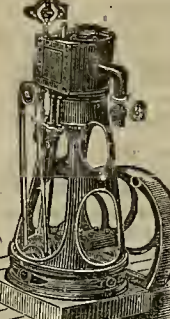
MAOAZINES.	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godey.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	3 00
Peterson's.....	
Arthur.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
don Ill. News.....	15 00

**W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.**

**RIDER'S
Automatic Cut-off
Vertical Engines**

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1v16p



**1000 Farms
In Los Angeles County.**


For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Rancho," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unusual portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTMAN, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-5ms

O. J. KINO,	T. B. KIMBALL,	P. D. CODE.
P. D. CODE & CO., MANUFACTURERS OF JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES, Canned Fruits and Vegetables of superior quality. 621 and 623 Front Street, Between Jackson and Pacific, San Francisco. 16p		

**W. T. GARRATT & CO.
CITY
Brass and Bell Founder,**
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6v1
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

**HUNTINGTON, HOPKINS & CO.,
—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting,
Hose, and
RAILWAY SUPPLIES.**
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

**N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.**



Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
**SPAULDING'S
Patent Tooth Circular Saws.**
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. 3s

PATENTEES

Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon, Commissions dependent upon success. Inclose stamp for full information.
References on application. E. E. ROBERTS & CO.,
Consulting Engineers, 15 Wall street, New York.
14v213m16p

**PACIFIC
Rolling Mill Company,**
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
HAMMERED IRON
Of every description and size.
Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron 9v143m5p

The patent portable, automatic self-regulating
NEW GAS "MACHINE"
Highest and only Medals and official testimonials awarded the Inventor. Address, N. G. M. Co., 407 California Street, San Francisco. 18v21-3m

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JAN. 21, 1871.

VOLUME XXII.
Number 3.

Academy of Sciences.

At the regular meeting, last Monday, specimens of the flesh of the teal duck, in which were small parasites (*entoza*), were presented. Gregory Yalo delivered an opinion on the status of the Academy to the effect that before it have a legal character and be able to proceed with the business of building, as contemplated, it must re-incorporate and elect Trustees. Accordingly an agreement to incorporate was signed by the members present, and an election of Trustees will be held on Feb. 6th, at 7½ P. M.

Prof. Davidson made some remarks on the location and height of Mt. Rainier, on both of which points errors have hitherto prevailed. Recent observations of the Coast Survey have determined that it is in lat. 46 deg. 51 min., and lon. 121 deg. 45 min. 28 sec. Its height is 14,444 feet, which gives it a place above our other peaks as far as they have been definitely measured.

The Sutro Tunnel Bill.

The principal points of this Bill, as introduced into the Senate, by Mr. Nye, and referred to the Committee on Public Lands, are as follows:

All moneys received by the United States from the sale of mineral lands are to be set apart as a special "mineral land fund," and from this the Sutro Tunnel Company are to be assisted to the extent of not over \$3,000,000, to be advanced as a loan which is to be repaid, after completion of the tunnel, with 25 per cent. of the net profits of the Company. For every 500 feet of tunnels, shafts or branches, after being accepted, the Government pays \$50,000, and has a first mortgage and lien on the whole property of the tunnel.

If the Company fails to fulfil its part of the contract, the tunnel is to be taken possession of by the Secretary of the Treasury for the use and benefit of the U. S. All extra funds and part of the payments of the Company are to be set apart for the establishment and maintenance of a National School of Mines.

The position and size (10 x 12 ft.) of the tunnel are defined, and provisions are made for securing the interests of the government. The Bill is in the hands of the Committee on Public Lands for investigation and report.

ANOTHER PETRIFIED FOREST.—The Russian River *Flag* of Jan. 12th, announces the discovery of a field of petrified trees:—It is situated near the ranch of Charles Alexander, at the lower end of Alexander Valley, and about 12 miles from Healdsburg. He does not know over what extent of country it exists, as he had not an opportunity of prospecting extensively at the time he was there. He saw a large number of trees and stumps, and a great amount of the limbs in broken fragments, all over the country. Many of those that remain standing are on a hillside and stand perpendicular to the surface of the ground.

Lamp Attachment for Sewing Machines.

The importance of a good light directly on the work in hand, and not thrown into the eyes of the operator, cannot be overestimated, especially for those persons who are obliged to subject their eyes to severe tests. Only too little attention is paid to this matter, and we consequently see many with sight weakened and injured.

In using sewing machines, there is considerable difficulty in securing such a light. A lamp placed on the machine interferes greatly with the operations, and is liable to be knocked over. Experience in this

to the machine. By the uses of such a device, not only is increased speed in work obtained, but the eyes of the sewer are protected from injury.

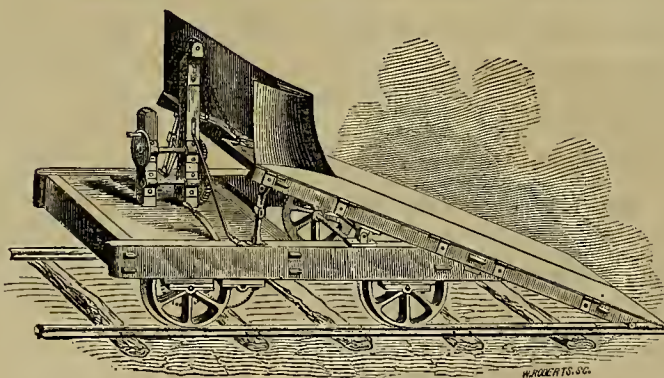
A patent has been granted for this invention, through the SCIENTIFIC PRESS patent agency, to Mr. Campbell, of this city. Messrs. Cohen and Campbell, 912 Kearny street, are the general agents, and will furnish any further information desired.

Snow Plow.

Any one who has been "snowed in" on a



IMPROVED LAMP ATTACHMENT FOR SEWING MACHINES.



SHAW'S IMPROVED SNOW PLOW FOR RAILROADS.

matter has led to the invention here illustrated, which is a neat and simple bracket, easily adjusted so as to throw the whole light directly where it is needed. By this arrangement, the light can be directed to any desired point, while the lamp is securely held in a position which does not interfere with the working of the machine. The cut shows the device sufficiently well without need of description.

The lamp used in connection with the bracket is a medium-sized hand lamp, which can be detached and used for other purposes if desired. An improved burner and a neat shade are used, and the whole can be made quite an ornamental addition

to the machine. By the uses of such a device, not only is increased speed in work obtained, but the eyes of the sewer are protected from injury. A plow, then, which will not stick, nor bank up the snow before it, and which will rapidly clear away the obstructing drift, is an object of interest to all travelers. Such a plow has been invented, according to the claims of the patentee. Its construction will be seen from the accompanying engraving. Its principal point is the method of working the plowshare.

This plowshare consists of two leaves,

forming, when in working position, a rectangular platform inclined at an angle of about 20 degrees with the horizontal. This is pivoted, transversely of the truck, so that by turning the crank, shown at the rear of the platform, it can be revolved into a horizontal position, such power being secured by the intervening toothed wheels and knee joint that no weight of snow on the platform can keep it from revolving. Or by proper connections, on throwing the wheels into gear, the backing of the engine can be made to accomplish the same result. The two leaves of the platform are hinged at the outside edges, and connected by a two-branched chain passing over a pulley placed in the top of a pillar above the floor of the plow truck, with a windlass beneath the floor, which is fixed on a shaft bearing a toothed wheel, that may be slid into gear with a toothed pinion on the front axle of the locomotive. The whole may be thrown into gear by the operator, by means of the lever shown on the right hand of the truck, when the leaves will unfold and dump their load on each side of the track.

The plow is to be used as an ordinary snow plow until the banking up of the snow before the locomotive brings the train to a stand-still. Then the platform is to be revolved to a horizontal position, the locomotive backs and carries with it a load of snow, which is tossed to each side, at any convenient point, by revolving the two leaves. These fall again into position, the platform is inclined, the engine driven forward, another load of snow taken up and deposited as before. This operation can be repeated very rapidly until the track is sufficiently clear for the train to proceed.

The invention is ingenious and if successful will be blessed by many. It is the device of Mr. Thomas L. Shaw, of Omaha, Nebraska, who should be addressed for any further information.

CALIFORNIA RAISINS.—We meet with notices in nearly all our agricultural exchanges, speaking of small lots of raisins which have been produced, the past season, in their various localities. These facts are of considerable interest as showing that the attention of our grapegrowers is being more than ever turned to this important product. This is no reason why we should not prepare at home all the raisins needed for the supply of this coast. Let our grapegrowers experiment in this direction—put up their own raisins, at least, and gradually educate themselves so that they may eventually prepare them for the market. Grapes are worth only two, three, or four cents per pound, while raisins are worth from 15 to 25 cents—a large per centage to add to the raw product.

THE IRON AGE.—This valuable exchange comes to us this year considerably enlarged and improved. It is an able supporter of the interests which it represents, and its Market Reports and Quotations, prepared with especial care, are very complete and reliable. We often find matter for quotation in its columns; and we wish it continued success. Published by David Williams, 80 Beekman street, New York.

MECHANICAL PROGRESS.

VACUUM TANNING.—The editor of the *Boston Hide and Leather Interest* has recently visited the establishment of Messrs. Norton, Dorr and Hunt, at Lewiston, Maine, to see the working of the above named process, and thinks it well worth the attention of tanners. The "vacuum tank" is of wood, copper lined, and capable of containing 100 "sides." At one end, an air-tight iron door, also copper-lined, is opened to receive the hides, which are hung upon hooks within, and the door is then closed. Several "junks," containing tanning liquor of different strengths, are placed underneath the tank, and connected with it by copper pipes so arranged that the liquor from either alone can be admitted into it at will. At the top of the tank enters the pipe from an air-pump driven by water power. There is a pipe and stopcock to admit the external air at the proper time; also a vacuum gauge and a liquor gauge. Everything being ready, the air-pump is started, and at the proper moment as indicated by the vacuum gauge, the liquor from one of the junks is let in, and allowed to flow until the gauge shows that no more will enter, when it is stopped, and the external air admitted. In about two hours the liquor is drawn off and a stronger one sent in in the same way from another junk, and so on, the strength being greater and the time longer for each. The liquor is changed four times the first day, and afterwards as often as may be necessary. The time required to tan a calf skin is two or three days; the heaviest hides need twenty. Some belting which was tanned in 16 days by this process had been running for several months, and was pronounced a very superior article.

The advantages claimed for this method are,—the saving of time,—and therefore of interest on the cost of hides until they are returned to the market as leather,—the saving of labor,—as the hides have to be handled but once,—the saving in bark,—for there is not time for chemical changes which affect the tannin,—and the increased weight, owing to the comparatively slight loss of gelatine by decomposition in a tanning so rapidly carried through. Although the first cost of the "plant" is somewhat greater than for the usual method, these advantages are said to largely counterbalance it.

TRANSMITTING POWER BY MEANS OF COMPRESSED AIR.—At a late meeting of the Polytechnic Club of the American Institute, W. S. Henson read a report prepared by him for Horace H. Day, who had employed him as engineer to conduct a series of experiments, to determine the feasibility of a plan for utilizing at Buffalo, N. Y., a 206 foot fall at Niagara, on the American side, 20 miles distant. We quote from this report:—"In response to your request for the elements necessary for the transmission of 5,000 horse power from Niagara Falls to Buffalo (about 20 miles), using your magnificent power of 206 feet fall, I suggest the utilization of 185 feet of this fall by the direct compressing power of a column of water acting as a ram, without the intervention of water wheels or the friction of cylindrical compressors with moving pistons, because by the use at that point of such compressors, you absorb the heat generated in the act of compression and avoid the loss from friction by piston or cylinder, and all the wear and tear of ponderous water wheels. This direct acting hydraulic pressure, working in one sense as a ram, may be made to develop any amount of pressure desirable, and taking into account the cost of pipes and other considerations, I would suggest that the pressure should not be less than 80 lbs. or more than 100 lbs. per square inch; and a pipe of 42 inches in diameter would transmit from Niagara Falls to Buffalo a column of air compressed to 100 lbs., with a velocity of ten feet per second, and a loss from friction of tube, for the whole distance, not exceeding one per cent. of the power transmitted, and deliver for use over 5,000 horse power of cold air. I should recommend, however, a pipe of 36 inches diameter, which should deliver a column of air at 100 lbs. pressure and 14.33 feet per second terminal velocity, and give a full 5,000 horse power of cold air, worked expansively at a loss by friction and exceeding five per cent. for the 20 miles."

NEW MINING LOCOMOTIVES.—The *U. S. Railroad Register* of Dec. 24th describes two small locomotives just completed at the Baldwin Works, for the Wilkesbarre Coal & Iron Co., to take the place of mules underground. We give part of the description: "The wheels were small, but heavy, with a broad, flat tread, and very light flange. The two cylinders, 9 inches in diameter (inside) by 12 inches stroke, lie under the front end of the boiler. The piston rods play between groups of four square slide rods, and a simply adjusted link motion works just forward of the fire box. The connections are of course inside, on the cranked axle of one of the two pairs of drivers (of 30 inches), which are the only wheels. The fire box and low platform overhangs behind. As coal is always at hand, no coal space is needed, and the water tank is folded over the top and sides of the boiler, acting as a jacket, and feeling quite hot to the hand. This tank holds 190 gallons, and the whole engine, with fuel and water weighs nearly 15,000 pounds. The makers guarantee that it shall haul, under all circumstances, with wet and dirty rails, on a level, 340 gross tons; on a 60 foot gradient, 80 gross tons; and on a 100 foot gradient, 50 gross tons."

SOLUTION OF SILK IN PHOTOGRAPHY.—We have alluded to the paper by J. Spiller, F. C. S., upon a method for the detection of other fibres in fabrics purporting to be entirely of silk, based upon the fact that silk alone is immediately and completely soluble in concentrated hydrochloric acid. In conclusion, Mr. Spiller remarks briefly upon the chemical properties of this silk solution. We quote: "The mucilaginous liquid so prepared cannot be evaporated, even over a water bath, without becoming somewhat carbonized; the free acid may be partially separated by dialysis, or by exposure to air in a shallow capsule, placed within a bell-jar charged with a liberal supply of slaked lime to absorb the hydrochloric fumes, but the resulting solution will not then bear dilution with water without precipitation of the animal matter. Ammonia, added in excess, forms a clear solution, which I am hopeful of being able to employ in photography; for when this liquid is evaporated, there is left a brown saline residue of rough astringent flavor, which, when mixed with aqueous nitrate of silver, gives a peculiar flocculent form of argentic chloride, which is no longer curdy, and much more rapidly affected by light than the ordinary condition of chloride of silver. These properties enable the silk compound to be usefully employed in the production of "matt-paper" prints and direct solar-camera enlargements. Its application to the collodio-chloride process appears also to be worthy of trial."

THE "WHITE CLOUD" ENGINE.—We take the following from *The Engineer* of Dec. 9th: "At the request of the inventor, we have recently been present at trials with a first experimental engine on a new principle. This engine compresses air in stages, passing it at each stage through water, by which process it is highly saturated, and the heat given out by the compression of the air at each stage is so entirely taken into the saturation, that even at the 400 lb. per square inch of pressure at which the engine was run during the trials, we witnessed the pumps remain quite cold. The highly compressed "white cloud" resulting from the operation is passed onwards to a coil in a heating chamber, and from this coil to the cylinder. As in all first experimental engines, both the arrangements and proportions are admittedly as yet very imperfect. We may instance one evident defect in the fact that, with the charge cut off at one-fourth the stroke, and 400 lb. pressure, 100 lb. of pressure is wasted into the exhaust. This excessive waste with a largercylinder might be saved, and with other advantages obtainable from such increase in its size, might be expressed in effective power. With a cylinder of 4½ inches diameter, and a 6-inch stroke, an exertion of about 4-horse effective power on a continually suspended load was obtained, at a consumption of fuel about equal to that used by those prize engines at the late Oxford engine trials, which so exerted that amount of horse-power."

SCIENTIFIC PROGRESS.

MIOCENE MAN NOT PROVED.—The following is from a notice by W. Boyd Dawkins, in *Nature*, of M. Hamy's "Palæontology of Man": "The evidence adduced by M. Bourgeois of the discovery of flint flakes and scrapers in the Miocene strata of Thenay, along with remains of the hornless rhinoceros and mastodon, proves, according to M. Hamy, that man was an inhabitant of Miocene Europe. It is, however, rejected by most of the French and English savants, because M. Bourgeois has not shown that the implements in question may not have been derived ultimately from the surface of the ground, where they are very abundant. While M. Hamy acknowledges this to be the case, he does not see its full bearing on the value of the testimony. The implements probably are of Quaternary, or even of post-quaternary age, and certainly cannot be considered decisive of the sojourn of man in Europe during the Miocene epoch, although the climate at the time was almost tropical, and the conditions of life easy. Nor can the evidence of the grooved bones of Hali-there, found by M. Delaunay at Puncé in Maine-et-Loire he accepted, because it cannot be proved that the grooves may not have been caused by some other agency than that of man. The proof of the existence of man in Europe during the Pliocene epoch derived from the striæ in the fossil bones found at Saint Prest and in the valley of the Arno, accepted by M. Hamy, is equally unsatisfactory. The flint "arrow-head" and other rude fragments said to have been obtained at the former place from the same horizon as the bones of *Elephas meridionalis*, by M. Bourgeois, the stout champion of Miocene man, do not afford the precise and exact testimony which is demanded for the establishment of the case. The presence, indeed, of man in Europe in the Miocene and Pliocene epoch is as yet non-proven, and we must be content to await future discoveries. The result of the labors of archaeologists and geologists throughout Europe during the last ten years has not placed the advent of man further back than the river gravels of the Somme, and the epoch of the caves, both of which are post-glacial or post-pliocene, or quaternary, in other words posterior to the great submergence and refrigeration of northern Europe, through which many of the Pliocenemammalia were destroyed."

Eozoön CANADENSE.—It will be remembered that some time since Messrs. Logan, Dawson, Carpenter and Hunt, announced the discovery of organic remains in the Laurentian rocks of Canada; and it was said that here we had the earliest known trace of animal life. The subject has been considerably discussed. *Nature* for Dec. 22d contains a letter from T. M. Reade, in which, after briefly reviewing the history of the controversy, the writer gives his own reasons for considering the so-called organism a merely mineral production. We quote a single paragraph: "The broad fact then remains unshaken that in unaltered rocks no Eozoön structures have yet been discovered. On the other hand, in metamorphosed rocks such structures are abundant, and even Dr. Gümbel, of the Bavarian Survey, a believer in Eozoön, has been much mystified by finding its features in impossible places. Not only do we find it in the Laurentians, but in rocks of a much later date, but curiously only in those that have undergone alteration. If it be an organism, then hydrothermal action, it seems, is necessary to its development, not as one would suspect during life, but ages after its entombment in sedimentary deposits."

ABSORPTION OF SULPHUR BY GOLD.—A paper with the above title was read at a recent meeting of the Philosophical Society at Wellington, New Zealand, by W. Skey, Government analyst. The author, while recently investigating the causes of the reported loss of gold at the Thames gold fields during its extraction from the ore, found that gold is acted on by sulphuretted hydrogen, and thus a sulphide is formed which tarnishes the surface. Also that gold combines with free sulphur at a temperature of 212° Fahr. Gold thus sulphurized on the surface will not amalgamate with mercury. The loss of gold is not altogether due to the condition of the mercury, as has hitherto been supposed, as he has found this sulphide on the surface of native gold of every degree of purity.

VISION UNDER WATER.—A correspondent of *Nature* makes a "Contribution to the dioptries of vision," from which we quote: "A couple of watch-glasses, placed with their concavities towards one another, so as to enclose a convex lenticular portion of air, when immersed in water, disperse the rays of light and diminish the size of objects seen through them, because they force the more refractive medium, the water, to assume a concave shape in relation to the air between the glasses. The same watch-glasses placed with their convex surfaces towards one another, and connected around their edges by a water-tight rim, thus enclosing a concave lenticular portion of air, when immersed in water, refract the rays of light convergently to a focus and magnify objects, because they force the more refractive medium to assume a convex shape in relation to the air between the glasses. Their magnifying power or focal distance under water is somewhat less than that of the same glasses in the reversed position and filled with water is in air; the slight difference being owing to the greater refractive power of the glass in air than in water. I found that two glasses of a curvature of about 1½ inch radius thus placed formed in water a lens having a focus of about two inches. This *air-lens*, as it may be called, completely supplies the loss of our anterior lens in water, and restores perfect vision. Of course the same magnifying power may be obtained by various combinations of differently curved glasses, or by plano-concave or concavo-convex air-lenses. The advantages of this kind of lens for subaqueous vision over a glass lens are obvious. It can be made of any required size so as to command a large lateral field of vision. It ceases to act as a lens the instant it emerges from the water, and does not interfere with vision in the air, as then we merely look through two thin pieces of glass with some air between them. There is no provoking loss of refractive power, as in the case of the glass lens; and lastly, it can be made very cheaply. With either form of lens we can see from below the water objects in the air above us quite distinctly if the surface of the water is smooth, less distinctly if it is agitated."

THE YALE EXPEDITION.—The *New York Herald* of Dec. 24th has an article giving some notes of the excursion of Prof. O. C. Marsh's scientific party, among which we find the following:—"At the Antelope well, where Prof. Marsh discovered, in 1868, the fossil liliputian horse, which he has since named *Equus parvulus*,—were found several others, making in all eighteen distinct species of fossil horses so far discovered on this continent. "Of the other animals obtained from this well, there were two kinds of rhinoceros, an animal something like the hog, one or two allied to the camel, and two or three carnivorous animals, one of them larger than a lion. In all, fifteen species of extinct animals were found in a space of ten feet in diameter and only six or eight feet in depth, making it by far the most remarkable animal discovery ever made in any part of the world. It is supposed this locality was once the margin of a great lake, and that the animals sunk down in the mire when they went into the water to drink."

AFRICAN EXPLORATIONS.—Dr. Petermann, the leading geographical authority in Germany, has just received important letters and maps from the distinguished African explorer, Dr. Schweinfurth with news to the 29th of July. This traveler reports a lengthy journey in the direction of the equator, by means of which our previous knowledge of the sources of the Nile has been enlarged, and to some extent modified. The source of the Shari river, flowing into Lake Tsad, has been discovered, and Lake Piaggias, of which so much has been written, has probably no existence!—*Courant*, Dec. 31.

SULPHURET OF ZINC.—A. Wagner records a series of experiments made with sulphuret of zinc, purposely prepared and left standing exposed to the air. The chief result is, that sulphide of zinc hardly oxidizes at all; and for what little it does, it evolves sulphuretted hydrogen, and differs essentially from the sulphurets of iron and manganese, which become, under the same conditions, converted into oxides, sulphur being set free.—*Dingler's Journal*.

DELICATE COLOR-TEST FOR STRYCHNIA.—W. T. Wenzell finds that a solution of one grain of permanganate of potassa in two thousand grammes of sulphuric acid will detect even a trace of strychnia.

CORRESPONDENCE.

Bound East.

(Continued from page 19.)

The Union Pacific Railroad.

The enterprise shown in building this road, the longest in the world, cannot be too highly praised, and its present and prospective value to the whole country cannot be over-estimated. Roads are great civilizers. The action of Marshal Wade in building common roads in Scotland, years ago, is said to have exercised a more beneficial effect on that country in advancing the interests of the people in all respects, than had been accomplished by the most strenuous exertions of legislators and philanthropists during long periods of time. What Wade's roads did for Scotland, our railroads are doing for the United States. Our trans-continental road is opening up vast natural resources, which otherwise would remain lost to the world.

The present Board of Managers of the road are deserving of the highest credit for the manner in which they conduct the affairs of so great and important an institution. They are liberal in their action, ever ready to aid in developing the districts along the line, and do all in their power to forward the interests of the country. In these matters they are aided by the efficient corps of officers connected with the road. The road is built as well and managed perhaps better than most Eastern roads, the traveler has the best of accommodations, and the freight charges are indeed remarkably low.

There has been considerable discussion as to which is the shortest route from St. Louis to San Francisco—*via* Omaha or *via* Kansas City. A gentleman writing to a paper in Omaha, quotes these figures: From St. Louis to Omaha, 438 miles; from Omaha to Cheyenne, 516 miles; total, 954 miles. From St. Louis to Kansas City, 272 miles; from Kansas City to Cheyenne, 745 miles; total, 1,017 miles; showing a difference in favor of Omaha of 63 miles. This difference will be increased fully 100 miles as soon as another road, now building, is completed.

Omaha and Council Bluffs.

Omaha, the present terminus of the Union Pacific Railroad, is a go-ahead place of 15,000 to 18,000 inhabitants. It was the first settlement made in Nebraska, although it did not attain any considerable importance or size until the Union Pacific Railroad was inaugurated. Since that time it has grown very rapidly. It has a large area of fertile territory tributary to it, and its connections by steamboat and locomotive are bringing to it a vast amount of trade. It now supports four newspapers, has a large number of hotels, contains many fine residences, etc., etc. Between this city and Council Bluffs, situated just opposite, on the east side of the Missouri (but three miles back from the banks of the river), there is considerable rivalry. Council Bluffs is also quite old as a settlement, but young as a city. It was the Kanessville of the Mormons from 1846 until 1853, when the present name was adopted.

The great bridge over the Missouri, built by the Union Pacific, is one of the first objects of attraction. It is built after "Post's patent," will be of iron and half a mile long. It will be 50 feet above high water mark, and will rest on hollow iron pipes (cylinders, 8½ feet in diameter), filled in with concrete, rock, etc. The spans, 250 feet in length, are 11 in number. Work is going on night and day, and the bridge will be completed some time in 1871. I am told that it will cost about \$2,000,000.

The machine shops, etc., of the railroad are well worth a visit. They are situated near the river on a tract of some 30 acres in area, are of brick, and are most complete in all respects.

The 12,000 inhabitants of Council Bluffs are live people. They have a street rail-

way, several papers, fine school houses and churches, a large (the State) Deaf and Dumb Asylum, several flouring mills, and other evidences of progressing civilization. The Council Bluffs Iron Works must not be forgotten. Here 40 men are employed. The company has just secured the control of Borchoff's (?) improvements in mining machinery, among which pressed shoes and dies deserve mention. These are made of the best and toughest iron, cast with neck down, and while hot subjected to a heavy screw pressure, which makes them very solid and close-grained. I am informed that they have been tested thoroughly in Colorado, and have given great satisfaction, being very durable.

The Omaha Reduction Works.

Meeting Mr. Leopold Balbach, I was kindly invited by him to take a walk through the works of the Omaha Smelting and Refining Company. Mr. Balbach has been engaged from boyhood in the smelting operations carried on at Newark, New Jersey, and the company has been fortunate in being able to secure his valuable services as superintendent.

Being anxious to furnish items of interest to the readers of the Press, I send you on the information which I have obtained, I try to give facts, and facts only.

Ground was broken on the 15th of October. The U. P. R. R. Co. granted the company all the ground which they required, and a side track has been laid to the works, which are now nearly completed. On and after the first of January, the company will be prepared to receive ores and bullion.

The main building is 40x80 feet. Here are two reverberatory furnaces, two shaft furnaces, four separating furnaces and a cupelling furnace. In a side-building, 30x30, is placed a 20-horse power engine, with boiler, etc. Each separating furnace has a capacity of from 4 to 5 tons in 24 hours, is 6x9 feet, the hearth 4x5 feet, and the kettles are 22 in. deep and 30 in. in diameter. The main stack is 55 feet, and the second is 35 feet high. There will be used for furnaces, stacks, etc., 15,000 fire-brick and 175,000 common brick; also 20 tons of castings, etc. The iron work comes from the foundry of Hall and Brothers. They are now building an addition, 30x40 feet, with two more furnaces for refining the lead.

When the works are running, some 20 or more workmen will be employed. Coal from the Wyoming coal mine, on the U. P. R. R., will be used in the reverberatory furnaces. Arrangements have been made with the railroad, by virtue of which ore will be transported from Ogden to the works at the rate of \$100 currency per car load of 10 tons. The charges will be: for reducing ores, \$30 to 50 currency per ton; for desilverizing bullion, \$16½ to \$22½ currency per ton. Returns will be made in two to four weeks. The company will increase the capacity of the works as they may find it necessary.

The Balbach Process.

The Balbach process for separating silver and gold from lead will be used here. The process consists in melting the lead that contains the gold and silver in a furnace with an inclined hearth, and drawing it off into a kettle containing a certain amount of zinc in a molten state. After all the lead is thus drawn off, the latter is thoroughly mixed with the zinc, after which it is cast into pigs or bars and replaced in a similar furnace, and just sufficient heat given to melt the lead, but not to melt either zinc, silver or gold. The latter alloy is then placed in retorts where the zinc is distilled off from the silver and gold with a small portion of the lead, after which the latter three metals are placed upon a cupel for further refining.

W. H. M.

(To be continued.)

Notes of Travel in San Joaquin County.

(Written for the Press.)

Stockton Statistics.

San Joaquin County at present contains 21,079 inhabitants, an increase of 124 per cent. in ten years. The city of Stockton (the county seat) is situated on the San Joaquin river, 125 miles from San Francisco by water and 90 miles by rail, and 50 miles from Sacramento. It contains 10,033 inhabitants, a gain of 170 per cent. in 10 years, and is the fourth city in the state, as regards population, but the second in manufactures. Of these last I will speak further along. The outstanding indebtedness of the county is but \$314,102, without any floating indebtedness. The following returns, from the U. S. Marshal's report,

show the real value of property in the county to be \$23,474,805, an increase of \$20,591,761 in ten years. The real estate transactions for the 12 months ending Dec. 31, 1870, were \$1,085,488; the U. S. Land Office sales for the same period, in the county at large, foot up 262,825 acres, paid for, pre-empted and otherwise. \$160,885 worth of brick and \$155,300 worth of frame buildings were erected in Stockton in 1870. The street and sidewalk improvements for the same year amounted to \$83,000. The number of children attending the public schools in this city, according to the annual report of the Superintendent of Public Schools, ending July, 1870, was 2,709; and \$50,312.38 was expended last year for buildings, salaries of teachers, etc., for the convenience of, and educating the same. The mortality for 1870 was 205. The number of marriages for the same period was 162. The number of inches rain fall for 1870 was 7.66. The city contains 3 banks representing an aggregate capital of \$1,250,000.

The secret organizations represented here are the T. and A. M., Independent Order of Odd Fellows, and Red Men; and the order of the Knights of Pythias, are about starting a Lodge here. Of the three former, all are in a prosperous condition and have a large and still increasing membership. The Odd Fellows of this city formed an association in 1867, known as the Odd Fellows Hall Association, and purchased a lot and built one of the finest halls of the kind in the State, which cost \$47,000. In 1867, they borrowed \$22,500, and on Oct. 1st, 1870, they had decreased this indebtedness to \$15,349.83. They expect to clear off the entire indebtedness by June 19th 1873. C. O. Burton, is Pres., Joseph Adams, Treasurer, and T. K. Hook, Secretary of the Association.

Ship Canal—Railroads.

The Stockton Ship Canal Company is a very important association. The incorporators are G. S. Evans, P. Bargion, J. Sedgwick, S. Eldridge, S. Badger, T. K. Hook, G. A. Shurtleff, J. Schrick, C. G. Hubner, J. M. Cavis, Wm. H. Knight, H. H. Bancroft, G. L. Kenney, N. Sposati, C. M. Weber, P. Neistrath, W. S. Moss, N. M. Orr, K. C. Sargent and C. M. Creanor. The Directors are Wm. H. Knight, (President), T. K. Hook (Vice President) C. G. Hubner, (Treasurer), S. Eldridge, and H. H. Bancroft. The grantees of the Stockton Ship Canal franchise, granted by the last Legislature, have assigned their interest therein to the above named incorporators. The project is one of the greatest importance to Stockton, and the people will help it on if they are alive to their interests. I promise in a future article to give an extended account, and to illustrate this with a diagram, (your space permitting,) and in connection with the same, its converging lines of railroads, in process of completion.

At the present writing, about 10 miles of the S. & C. R. R. are finished, to a point where a new town is being laid out, to be called Holdenville. Four miles farther along, on the same road, another town is being laid out to be called Petersburg. Both of these are named in honor of two prominent citizens of Stockton. From Petersburg it is proposed to build three lines, one to Angels Camp, and Murphy's; the main road to extend to Copperopolis and Sonora; and the other branch to Farmington, Knights Ferry, and so on. 40 miles of the iron rail is on board vessels now due at your port.

Manufactures.

The Stockton Woolen Mills, Lambert, Doughty & Tatterson proprietors, have manufactured to date (only recently started) \$10,000 worth of blankets, \$5,000 worth of which have been actually sold. They employ regularly 20 men. The works are run by a forty-horse power engine, with a capacity of running four times the machinery now in operation. The fabrics of this mill are in good demand with the citizens here,

but the lack of funds, to extend their capacity, is the only drawback to introducing their goods to the world at large.

Of tanneries, there are several here, doing, I am informed, a good trade. As yet I have visited but one, that of J. S. Derby, situated on Mormon Slough in the suburbs of Stockton. Mr. D. employs regularly 5 men, and is doing a business of \$20,000 per annum; for nine months of the year he turns out 120 sides per week. Calf, Kip, Harness, Skirting and Sole Leather is his speciality.

The Stockton Iron Works, Farrington, Hyatt & Co., proprietors, manufacture steam engines, iron and brass castings, and regularly employ 11 men. The machinery is run by steam power and is kept busy the year round.

Matteson & Williamson, are the manufacturers of all kinds of plows. They hold the patent-right of the American Chief Iron Sulky Gang Plows, of which they manufactured 120 last year, which they sold for \$11,400, besides numerous and sundry other plows, harrows, cultivators, etc., to the extent of \$25,000, or \$30,000 more. The total amount of manufactured articles by all the different manufactories in iron, wood and tin, in Stockton for the year just ended, was \$1,392,918.

Sperry & Co.'s grist mill, on the corner of Beaver and Leavys sts., is 50x100 ft., four stories high, and cost its previous and present proprietors \$150,000 to erect. For the last four years it has averaged yearly 70,000 bbls. of flour, and 500 tons of ground barley. It is run by an engine of 185 horse power, supplied by three tubular boilers, of 54 inches diameter, 16 ft., long, with 49¾-inch tubes in each; the capacity of this mill is 500 bbls. of flour and 25 tons of ground barley per 24 hours run.

Livery and Sale Stables.—M. Magner, of the "El Dorado," has probably the largest stock of horses, from 40 to 50 head. His principal business in summer is with tourists to the Big Trees and Yosemite. He keeps a register of all tourists, names, which it is quite interesting to review. He has on hand all kinds of imported buggies, carriages, and wagons for sale, having the agency of several prominent manufactories in the East. The "Main Street" stable, kept by Doak & Dunning, and the "Weber" stable, by Beldin & Morris, are worthy of mention, but in the absence of statistics, I must pass them.

The "Yosemite" stable, Geo. Fox, proprietor, was completed in May last, and is one of the finest of its kind in the State. It is of brick, 75x75 ft., with gas and artesian water throughout the whole. It has a capacity of stabling 200 head of horses, and cost \$14,000. Mr. F. has at present forty-six head of horses, fourteen of which are valued at \$500 each and upwards. For his dark bay horse, *Defiance*, he has refused \$2,500. This horse is considered one of the fastest *pacers* on the California turf. Without any attempt to flatter, I think he has the largest number of fine horses and corresponding turnouts in the State.

Fine Stock.

Hiram Drew.—This fine stallion is six years old, a deep cherry bay, with black points, no white, stands 16 hands high, weighs about 1,200 pounds, and shows well for speed, having made a 3 minute gait with 4 weeks training from the biting harness. He was raised in Penobscot Co., Maine, and imported to this State in May last, by W. E. Green, who disposed of a one-half interest to L. E. Yates of Stockton, where he is now kept. He was raised by "Old Drew" of Maine, who was the origin of many fine and fast trotters, among which is the celebrated stallion, McCollan, now in San Francisco; also the Cloudman horse, supposed to be now in New Jersey. Both of these have trotted low down in the twenties. Also grand sire to Little Fred, who trotted in the fall of 1869, at Philadelphia, in 2:21. Of the pedigree of Old Drew, but little is known, except that his dam was a fast trotting mare of English origin, having trotted 20 miles in one hour, subsequent to her bringing Old Drew. The dam of Hiram Drew was sired by Old Eaton, of Maine, out of mare sired by Anson Messenger, he by Winthrop Messenger, and he by Imported Messenger. Old Eaton was sired by the Avery horse of Maine out of a Highlander Mare. The Avery Horse by Massachusetts Messenger; dam, a Morgan mare.

Chieftain.—This excellent stallion is owned by J. H. Dodge and M. T. Noyes. He is 16½ hands high, light bay, black legs and tail, weighs 1,350 lbs., is 14 years old, valued at \$6,000, and is considered among the best of his kind in the State. He is the sire of *Defiance*, the celebrated pacer owned by Geo. Fox of Stockton; also of Grant, owned by Sargent of your city; also of Flora, the trotter.

L. P. MC.

(To be continued.)

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

REVIEW.—*Miner*, Jan. 7th: It is in Monitor District that most has been accomplished during the year. Since the Tarshish started up again, a winze connecting the upper and lower works has been completed, and nearly five tons sulphurets concentrated and sold at a good price in San Francisco. Where the lower tunnel intersected the ledge, ore of a fine quality was encountered, and in an intermediate level between the upper and lower workings, the largest deposit of soft ore ever found in the mine, has been lately discovered. Upwards of seventy sacks were taken from one pocket, and of a quality far exceeding anything yet found in the mine. It is expected that a mill will be built in the spring. Had this been done last spring, the mine would now be self-sustaining. The Globe Co. has its mill nearly completed. The developments in the mine are highly satisfactory. Mr. Winchester has bought for this Co. the Chicago & Detroit and Marion properties, and work has been commenced upon both mines. Taking out ore from the Chicago will commence next week, when additional track and a dump shall have been completed. The Monitor Consolidated shows large bodies of low grade ore. The mill will be set running in the spring. The Silver Glance tunnel will open the Tarshish nearly a hundred feet deeper. The Leviathan Co. failed in smelting, but can sell all their ore on dump at \$50 per ton.

AMADOR COUNTY.

KENNEDY.—*Dispatch*, Jan. 14th: This mine will ere long be one of the best in the county. The hoisting works are in running order, and the richest rock is constantly being hauled out.—The mill will be ready to commence crushing as soon as water can be obtained, and pipes are being placed in position.

CALAVERAS COUNTY.

QUARTZ MINING.—*Chronicle*, Jan. 14th: "The darkest days are passed. The old hap-hazard system is obsolete. Quartz mining is reduced to a science. Men who have a thorough knowledge of the business are now placed in charge of mines. The fact that Calaveras contains ledges that can be made remunerative, has been demonstrated. Permanent and profitable mines have been developed in at least three points in the county—Lower Rich Gulch, Angels and Railroad Flat. Confidence in the stability and extent of our mining interests is fully restored."

CEMENT.—The County Assessor's report was accompanied by a letter, from which we quote: About ten months ago, Eaves, Carin, Driscoll & Co. commenced prospecting in the burnt district of San Andreas. At the depth of forty-five feet they were rewarded by a lead of cemented gravel, thirty-five feet in width, and from five to eight feet in depth. Finding the cement to pay with an astra, they put up a wheel and crushing mill, of five stamps. It is now a success, paying twenty-two hundred dollars per run of two weeks. Three other companies have struck the extension.

ANGEL'S.—The same letter has the following on quartz: In the village of Angels are two mines, and about sixteen astras; these are run by water, and pay from three to ten dollars per day, clear. The Stickler mine, on the main lode, is a paying claim; but the owners, not satisfied with doing well, persist in sinking. The Angels Quartz Mining Co. is being successfully worked.

INYO COUNTY.

KEARSARGE.—*Gold Hill News*, Jan. 10th: James O'Donnell, foreman of the Kearsarge Owens River valley, arrived night before last from a trip to the mine. Before leaving he explored the side of the mountain where the Kearsarge is located, and found the ledge, or a spur, at the base, on the creek where the mill is located, upwards of 2,000 feet from the croppings. We understand that it is the intention of Sup. Winters to set the miners at work on this new discovery in a few weeks. Twelve tons of ore from the Kearsarge, believed to be worth \$2,500 per ton, are on their way, which will be submitted to the roasting process, at the Auburn mill, near Reno.

NEVADA COUNTY.

GOOD YIELD.—*Transcript*, Jan. 13th: A crushing of thirty-six loads of rock from the Orleans mine, worked at Stiles' mill, yielded at the rate of \$20 per ton. As this rock was taken out in sinking and drifting, the pay was good.

WATER WANTED.—Same of 15th: The miners are anxiously waiting for rain. There is yet time for winter storms sufficient to supply water enough to extend the mining season far into next summer.

THE EUREKA AHEAD.—*Gazette* Jan. 9th: The dividends paid by the Eureka mine for the year 1870, amounted to \$430,000. The dividends declared by the Amador mine for the same period were only \$155,000.

STARTED UP.—*Grass Valley Union* Jan. 12th: The reconstructed mill of the Empire started up yesterday morning, and was put to crushing quartz. Perfect success attended, and everything worked well. The rock being put through is excellent.

PLACER COUNTY.

GOLD RUN.—*Stars and Stripes*, Jan. 12th: Our correspondent informs us that three of the hydraulic companies at that camp have commenced washing, and if the storm continues two or three days longer there will be water for all.

SIERRA COUNTY.

MILL COMPLETED.—*Messenger*, Jan. 14th: The new mill for the Buttes' mine has been completed and accepted.

HOWLAND FLAT.—*Cor.* of same: Times are rather dull at present, owing to a scarcity of water. The Empire commenced a new tunnel last fall, the old proving too low for working to advantage; they intend to have the new one completed in two years. The Monumental claim is paying pretty well; also the Pittsburgh. The Hawkeye Co. are running an air drift to their shaft, and will have it completed in two or three weeks, when they will have all the air they need. They have very rich ground, and next summer will see it the leading claim in this vicinity. The Barnes Ravine Co. are doing pretty well. The Union Co. have reduced wages to the rate of two dollars and a half per day.

LA PORTE.—*Cor.* Downieville Democrat, January 12th: The Bald Mountain Tunnel Co. have let another contract. The rock has been very soft lately, and they have been making remarkably fine headway.

SISKIYOU COUNTY.

ETNA.—*Yreka Union*, Jan. 11th: The Etna Co. have been taking excellent dirt out of their claim for some time. They are about to commence to wash up the dirt drifted. They have not water to run their hydraulic.

SALMON.—From Mr. Reed, one of the owners of the Black Bear Quartz Co., we learn that the prospects of that section are daily improving. A new mill was about to start on Jackass Gulch.

TRINITY COUNTY.

TRINITY CENTER.—*Cor.* Journal, Jan. 14th: Thomas Coyle has completed his flume to the bank of Trinity river, so that it is now half a mile in length. He is one of our heaviest miners. Whitmore & Thomas, McLeary & Bloss, and Rumfelt & Co., all have No. 1 claims. Yesterday some miners came into town bringing fine specimens of dust from the head of Clark Creek, eight miles from where there was any work done before. One specimen weighed \$28 00, and they showed several of from \$6 to \$8 in weight. They report seven men upon the creek, all doing well and with plenty of water. The gold is considerably mixed with quartz, and the supposition is that there is a good ledge in that vicinity. There are only two companies at work at present.

Nevada.

EIY DISTRICT.

MEADOW VALLEY.—*Cor.* of Pioche City Record, Jan. 12th: The site for the Chicago mill is being graded for the machinery daily expected—Boyden, Supt., telling us we might expect to see the mill in operation in 40 days. Henry Raymond's little 5-stamp mill was cracking away as usual, throwing the silver in sight. The mill of Raymond, Ely & Mee was idle for that day undergoing repairs. The Bowery Co. have finally struck the ledge.

EUREKA DISTRICT.

JACKSON FURNACES.—*Sentinel* Jan. 14th: At no time has the bullion been richer than now, or the furnaces working more freely. About six tons of bullion are produced per day. The ore is almost exclusively from the Jackson mine, in which they have, within a few days, struck a new chamber of much better ore than usual. The greatest depth yet worked is 200 feet, at which working the miners have been unable to drift through it, although 20 feet from the shaft. Six men can get out ore enough per day to make six tons of bullion.

PHOENIX.—This company is pushing work on the Adams & Farren, and have good ore in the tunnel, which has been run forty feet. The assays are high, and there is every appearance that a large body will soon be reached. The same company has also purchased the Empire and Lexington.

BUTTERCUP.—This pioneer Co. is turning out large quantities of bullion. For some days they have been running on Wide West ore, of which they have purchased 80 tons, for the purpose of getting high grade bullion. The ore, with one-third carbonates, smelts as well as any ore in the district.

MINERAL HILL.—The Huber mill is averaging \$2,000 in silver bullion per day, on second-class rock, and this, like the Monte Cristo mill, has a Stetefeldt furnace that is of sufficient capacity to roast 30 tons per day. As soon as it can be done ten stamps more are to be added. The first-class rock will average \$400 per ton. The "Big Sandy" is becoming one of the best mines in the district.

BULLION.—From the 6th to the 12th of January Wells, Fargo & Co. shipped from Palisade, 52 bars refined bullion, valued at \$66,556 60, and the Central Pacific 260,290 pounds of base bullion.

TILTON SMELTING WORKS.—These first fired up yesterday. The furnace, as well as the Home Ticket, was purchased by Hon. S. S. Tilton, of San Francisco, and ten men are now at work on the mine, and teams are hauling ore to the furnace. Home Ticket ore will smelt any ore in the district in the proportion of one half of each.

HUMBOLDT.

CARMONY & SMITH MILL.—*Register*, Jan. 14th: In our last issue we stated that the mill was in full blast with a superior furnace. This furnace we stated was an improvement on the Stetefeldt, which appears to be not the case. We are informed that it is an original invention by Mr. Akin, the Supt.

RYE PATCH.—*Cor.* of Silver State, Jan. 14th: The Butte Reduction Works are in full blast. The Aiken furnace is a complete success, and a decided improvement on anything of the kind yet invented. The company are putting in five more stamps, which will give them a crushing capacity of fifteen tons every 24 hours. The Butte has 1,200 tons of ore on the dump and at the mill. The ore is of a high grade; the second class upon which the mill is running yields \$60 per ton. The Hard Cash Co. are running a water level tunnel which will test the vein a depth of 200 feet. The prospects are very flattering. The Rocky, 300 feet east of the Butte, is a fine looking vein. Ore was struck yesterday, which caused some excitement.

REESE RIVER.

BELMONT.—*Cor.* of Reville, Jan. 14th: On the 12th, at 1 o'clock, Mr. Canfield started up his new 10-stamp quartz mill. Everything went off as smoothly as if the machinery was old and tried. The engine room, under the supervision of Harry Mills, looks like a jeweler's shop. The amalgamation is effected in Freiberg barrels, conveniently situated to the settlers; the latter with the retort and melting furnace being on the lower floor and adjoining the assay office. The roasting is done by means of a Stetefeldt furnace. The rock breaker in the ore room is so disposed as to give a fall from it to the drying floor, in front of the battery. The whole community drank to the health of R. B. Canfield and the success of his mill.

WASHOE.

SAVAGE.—*Enterprise*, Jan. 15th: On the 535-foot level is the new body of ore, now what might be called the backbone of the mine. Its extent and value cannot at this time be calculated, but enough is known to satisfy experts that it is one of the most important strikes made in the mine during the past two or three years. It is a huge body of fine milling ore around which work has been done for years, its existence being suspected by few. They have opened 148 feet in length, and find it to be 24 to 30 feet in width, and throughout it will mill \$23 per ton. A drift is being run from the engine shaft to cut this deposit 100 feet deeper. The new body of ore struck east of the old shaft fourteen days ago, is narrow, but very rich. It is doubtless the old Potosi chimney. The mine is yielding 200 tons per day from all parts.

CROWN POINT.—This mine is looking exceedingly well. The new body of ore in the 1,100-foot level has much improved. A raise 35 feet upon the ore from this level shows the body to be six feet in width. It will mill at least \$45.

HALE AND NORCROSS.—They are opening the eighth level and running a drift on the west edge of the ore vein. The ore is of the hardest blasting character. The cross-cut on the main drift on this level has reached the east clay wall, and shows a width of 52 feet of ore. All the old ore breasts on this level are looking fine. The mine is yielding 190 tons per day, 35 of which comes from the old upper levels.

BELCHER.—Some very good ore is being taken from a winze 50 feet below the 335-foot level, and 80 feet from the Segregated

Belcher line. The streak is three feet wide. In the south-west drift at the 400-foot level, a promising body of fair grade ore is developed, 15 feet wide. Assays average \$45 per ton. The daily yield of the mine is only from six to ten tons at present.

VIRGINIA CONSOLIDATED.—The west drift from the bottom of the main shaft is in 1,107 feet, and the north-west drift 133 feet, toward the old Central. The rock is easily worked. Little water is coming in.

CHOLLAR POTOSI.—The yield during the week was 1,670 tons, 1,580 of which was shipped to the mills. The average assay of the ore extracted was \$76.

OPHIR.—Work in the "up-rise" from the south drift is vigorously prosecuted.

OCCIDENTAL.—This mine will probably start up again within a few weeks. Stockholders are anxious to see work resumed.

OVERMAN.—The Co. are taking out 80 to 90 tons per day. Most of this comes from the 226 and 400-foot levels, and 400 feet south of the main shaft.

GOULD AND CURRY.—About the usual amount and quality of ore from the old upper levels. A considerable amount of prospecting is done.

SIERRA NEVADA.—The mill is running upon good ore and the mine yielding about as usual.

DANEY.—The drift from the bottom of the shaft toward the vein is in 27½ feet. The ground is quite hard. The machinery is all working well.

SEGREGATED BELCHER.—The situation may be said to be unchanged. They are mainly engaged in keeping down expenses.

YELLOW JACKET.—This mine is yielding as usual. All the ore breasts are looking well, and a new deposit has been found which promises well.

GOLD HILL.—*News*, Jan. 14th: About 40 tons of ore per day have been taken out of the old Bowers and Trench mines, in Gold Hill proper, for some time past, through the old Stevenson incline, by Motz, Scale and others, but they temporarily suspended operations day before yesterday; the work will probably be resumed next week. This ore was taken from a depth of about 400 feet from the surface, and is rather low grade. In the old Bowers mine at that depth there is a body of this ore 15 feet wide.

GREAT RECEIPTS.—The Chollar Potosi receipts from ore reduced during December footed up \$505,654.

WHITE PINE.

The *News* of January 14th gives an extract from the assessment roll for the quarter ending with December, showing the amount of ore worked by the principal mines on Treasure Hill, together with the yield of each. We give the figures for three of these: South Aurora, 3,914 tons and 1,000 pounds, which yielded \$126,787 08, Ward Beecher 1,331 tons and 1,930 pounds, which yielded \$37,529 45. Original Hidden Treasure 996 tons, yielding \$20,940 60.

IREMS.—South Aurora is the most systematically worked of all. Between 60 and 70 men are employed. The tunnel is 464 feet in length. Three 50-foot levels have been run eastward, the third being in ore, some of which is as rich as ever came out of the Hill. The mine shows good ore enough to keep the mill running several years. The same Company has 20 men at work on the Cons. Chlor. Flat mines, which it now owns. In North Aurora—the usual force is at work in the Earl and Iceberg, and large quantities of ore are on hand. Ward Beecher—sends 50 tons to the Oasis mill daily, but the dump shows no decrease. The chambers filled with ore waiting for the tramway to be finished. Original Hidden Treasure—is sinking in the shaft, and Professor Clayton is to prospect the mine thoroughly and put in shape for working. Gen. Lee, located in 1868, runs \$50 to \$75 per ton, which will pay now. There is a solid body of ore 14 feet thick. Silver Wave will average \$60 per ton. Silver Wedge shows good indications. Ten tons of Trench ore gave \$408 per ton at the Big Smoky mill. Dominion bids fair to eclipse the Trench. The ore is extremely rich and the body extensive.

MILLS AND FURNACES.—International mill has had steam up nearly the whole week, and has been adjusting the running gear. The mill will not commence active operations until the tramway will be finished, which is expected to be in two weeks. Stanford mill keeps running on South Aurora ore. It will also be supplied by the tramway. Big Smoky mill is doing good work. The roasting furnace, has proved a splendid success. One containing 43 per cent. of lead has been successfully roasted and has yielded bullion which ran over 980 fine. Ores from Kern, Pinto, Mount Ophir, the White Pine range, and other places have been tried, and have

given uniformly good results....Metropolitan and Swansea mills are both running steadily....Oasis is working Ward Beecher ore and will be kept on that until the International starts....Monte Christo mill has been running on ore from Pinto....Alsop furnace is turning out lots of base bullion.

OUTSIDE DISTRICTS.—Clifton ore assays \$100 in silver per ton, and 33 per cent. of copper. There is also free gold visible. Work will be resumed in the spring....The Troy Co., is to have a 15-stamp mill made in San Francisco....In Tem Piute, Judge Thompson has 150 tons first-class ore out of the McKenzie claim. It assays \$100 to \$300. The Monroe has a 12-foot ledge with 3-foot pay streak. It has 20 tons good ore out. The Rattler shows ore of high grade. The Crescent 10-stamp mill will start up about Feb. 1st.

Arizona.

BRADSHAW DISTRICT.—Prescott *Miner*, Jan. 7th: Messrs. Moreland and Taylor report the miners all at work sinking, and that the mines are wonderfully rich. The Del Pasco was increasing in size. Work on other lodes proves that they are rich and permanent. A piece of ore from one of Moreland's lodes, assayed \$1,350 per ton in silver. There are more than fifty well defined quartz lodes taken up.

WICKENBURG DISTRICT.—From A. Barnett, we learn that the Vulture Co. in their lower level, has struck ore so rich, that they considered it necessary to place a guard over it. One wagon load of rock was supposed to contain \$10,000. The mill was running constantly.

Colorado.

NEVADA DISTRICT.—Central City *Herald*, Jan. 7th: Between forty and fifty claims are now worked on Quartz Hill. The Kansas lode is taking rank among the first. Ten claims are worked. Several of these are yielding \$120 to \$180 per cord. Waterman has a large quantity of very rich ore on the dump at the Flack mine. The Roderick Dhu, as usual, is yielding immense quantities of rich ore, keeping 70 stamps in operation the greater part of the times. On Prize Hill, Buck & Co. are obtaining plenty of rich paying quartz from the Commonwealth claim. Jennings & Co. are hoisting ore from a drift on the Central Co.'s claim. C. Hagar has struck "big pay" in the Monitor and is taking out quartz which yields 10 ounces of gold to the cord in stamp mill. The old Rochester Mining Co.'s claims, which have never before paid for working, are now leased by Cornishmen who are taking out seven ounces ore.

GRAND ISLAND.—Register, 11th: Only two mines are producing much salable ore, the Caribon and the Trojan. The former is now eight feet wide in the bottom. Besides the ore sent to the smelting works every day Mr. Cutter is saving a third class that will give 50 oz. by milling. Of this he has 400 tons on the dump, and is adding four to six tons daily. Mr. C. has commenced a tunnel to cut the Caribon at a depth of 400 feet. This, when completed, will be about six hundred feet in length and will probably cut other veins before reaching the Caribon. It is now in 40 feet.

The Wabash is a new lode, discovered by Dr. Mann, 800 feet south of the Caribon. The Doctor has one shaft 15 feet deep showing a crevice of 7 feet with 2 feet of pay ore similar to that in the Caribon. An assay gave \$4,422.60 coin per ton.

BLACK HAWK.—The freeze is over, and nearly all the mills are in motion. At the "Point," the Black Hawk Co.'s mill, 85 stamps, the Eagle, 20 stamps, Stevens Bros. of 14 stamps, and Fitzpatrick's 10 stamps, are working custom ores. Borham & Mellor's 20 stamps are working Gregory 2nd ore. The Polar Star mill is running its 32 stamps. Mr. Mead's is the only mill that did not have to shut down. The rejuvenated Bobtail is running, as well as the Sensenderfer. On Gregory Gulch, the only mill running is the Smith & Parmelee, although the Briggs will start soon. This makes 382 stamps at least that are at work, leaving 400 idle.

Messrs. Root, Hall & Queen are still creek mining. From their new location, 200 feet below the Bull's Head Corral, they are running a bed rock drift from the bottom of the shaft up the creek, and washing everything that comes out.

Idaho.

LOON CREEK.—Idaho *Democrat*, Jan. 7th: C. J. Tassell, expressman, reports some seven hundred people wintering in Lemhi county, two hundred of whom are at Oro Grande. Mining operations are confined to drifting. Mr. T. is confident that the coming season will prove a prosperous one, and that two men will take out dust where one did last year.

New Mexico.

SILVER CITY.—Cor. of Santa Fe Post, Jan. 7th: All seem to be well pleased with the progress and prospects of the mines. Shafts are being sunk, and in no instance to my knowledge has the ore decreased in richness as they go down. The wall-rock is well defined. New lodes are being struck between here and the burros, with plenty of water. We have a good prospect for two quartz mills by spring. A thirty-stamp mill has been ordered by L. B. Maxwell. Carson & Son, of New York, have contracted to have a mill in operation by the 1st of May. Col. Rynerson has an engine and machinery on the road from Mesilla, to run arastras and furnaces. Carrasco & Co. are running their furnace, and getting 50 per cent. profit. We have a new enterprise lately started, called the Eclipse Tunnel. It is in 35 feet, and is intended to strike the Legal Tender and other lodes 100 feet below the surface.

Montana.

PHILIPSBURG.—New North West, Jan. 6: Mr. Ritchie, who has been running the furnaces, does not believe that method of reduction a financial success, and work has been suspended. From Mr. Gerber we learn the mill is running steadily under the management of Capt. Plaisted. He finds ample power to drive all the machinery; is crushing 12 to 14 tons of Hope ore each day, and it yields \$40 to \$50 per ton. He is using 2,000 pounds of quicksilver and retorting every alternate day. Capt. P. has ten men at work on the mine; Duffy & Co., are taking out ore on Comanche No. 3 (Merrill's); and Murphy & Co., are mining on the Irish Republic, and Merrill & Ullery on the Franklin. Three assays from the latter ore by Ferd Kennett yielded \$109, \$194.75 and \$193 to the ton. The camp is quite lively, and Captain Plaisted will be ready in a month to crush custom ores.

PIONEER CITY.—Independent, Jan. 7th: O. W. Hirst informs us that there are seven companies on French Gulch, who are taking out pay dirt. Of course it cannot be washed until spring. One Co. have obtained as high as \$1 per pan in the gravel. All the claims prospect well.

CABLE CITY.—The Cameron Co. are taking out an unusual quantity of ore of fine quality. The mill is run constantly.

MOOSE CREEK.—Parks & Dickey's astras has been closed for the winter for want of water. They have crushed a large amount of ore the past season, the greater part of which has paid well. Their mine (the "Dixie") is developed to a depth of 142 feet, and they are still sinking. They have a vein of three feet, paying an average of \$45 per ton. Day & Harvey's silver ledges, in the same locality, are being worked vigorously, and first-class ore is taken out.

DITCHES.—The Miners' Ditch is nearly completed. The Lost Creek Ditch is being enlarged to a capacity of seven hundred inches, and the Race Track Ditch Co. are constructing an immense reservoir. The Lower Rock Creek ditch Co. are building a dam across Rock Creek, sixty feet long and twenty feet high. All except the last named are new ditches, and have a combined carrying capacity of 3,500 inches.

WEST SIDE.—Helena *Gazette*, Jan. 9th: We learn that mining business generally has been suspended for the winter. Chinamen are buying up ground at Cedar Creek, Elk Creek and other camps on the West Side. Claims that will pay three or four dollars per day are bought up by Chinamen at good prices.

Oregon.

The Idaho *Democrat* says that the El-dorado Ditch, to bring the water down Burnt River canyon, through a line of rich bars a distance of thirty miles, will be of three thousand inches capacity. The work will be commenced early in the spring. Hundreds of men will find lucrative employment in these places. Three hundred men will commence the work as soon as the weather permits.

Utah.

The Ophir City correspondent of the Colorado *Register* writes, Jan. 1st: "The Emma mine, of Little Cottonwood, furnishes from 30 to 70 tons per day, that pays a net profit of over \$150 on the dump." * * At East Canyon is Ophir City, built up since last July. About 500 lodes are already recorded. Up on the hill to the south of us is Silverado. Here are the Silveropolis and the Chloride Point mines; also the New York, Mountain Lion, Zella, and other valuable mines. In fact this is one of the richest districts ever discovered. Here are chloride ores. The mining belt extends for 300 miles southward, to Pahrnanagat.

THE "OUTCULT" ROOFING.—"The patent 'elastic joint iron roofing'—says the Cincinnati *Industrial Press*,—provides for the expansion and contraction of the metal in the most effective manner. Both edges of each sheet are rolled in the form of a scroll at the factory. When one sheet is laid the next one fits closely over it and is held firmly in its position by means of the shape of the scroll. The hollow cylinder which is thus formed on the opposite edges of each sheet gives the greatest strength possible for the weight of metal, secures a perfect dryness underneath without being air tight, and provides for the greatest possible expansion and contraction without injurious displacement. The sheets are fastened to each other at the end by a lap in the form of a hook, and the whole is laid without a nail hole in any part of the roof, as the sheets are successively fastened to the sheathing or rafters by cleats of iron which fit the inside of the scroll and are firmly nailed on."

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Jan. 19.

The mining share market opened weak, on last Friday, but on Saturday there was a reaction, and very considerable excitement on account of the rapid advance of Crown Point, which sold heavily up to \$40. This week, the market was at first quite firm, but grew weak again on Wednesday, through a collapse in Belcher and Crown Point. The following table gives last Thursday's quotations and the highest and lowest points since reached by the several descriptions of stock.

	Jan. 12.	Highest.	Lowest.
Alpha.....	\$4	5	3
Belcher.....	7	13	6
Chollar-Bosco.....	7	14	6
Crown Point.....	23	40	22
Eureka Consolidated.....	16	17	16
Golden Chariot.....	70	82	71
Gould and Curry.....	46	50	44
Hale and Norcross.....	97	102	96
Ida Elmore.....	13	13	12
Imperial.....	14	16	11
Kennecott.....	35	39	33
Meadow Valley.....	3	3	3
Ophir.....	3	5	3
Original Hidden Treasure.....	4	4	3
Overman.....	5	6	5
Savage.....	49	50	44
Sierra Nevada.....	20	20	18
Yellow Jacket.....	40	45	40

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	4 1/4	Ida Elmore.....	—
Amador.....	30 3/25	Imperial.....	14 1/2
Belcher.....	10 1/2	Kennecott.....	35
Chollar-Potosi.....	6 3/4	Occidental.....	5 1/2
Crown Point.....	30 3/4	Ophir.....	3 1/2
Daney.....	2 1/2	Orig. Hid. Treas.....	3 1/2
Empire Mill.....	—	Overman.....	5 1/2
Eureka.....	—	Savage.....	45 1/2
Golden Chariot.....	47	Silver Wave.....	3 1/2
Gould & Curry.....	47	Sierra Nevada.....	18 1/2
Hale-Norcross.....	100 1/2	Yellow ket.....	38 1/2

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY
Allegany, Sierra Co., Dec. 27, 50c.....	Jan. 27—Feb. 13*
Altona, G. V., Dec. 2, 50c.....	Jan. 9—Jan. 30
Argenta, Nevada, Dec. 17, 50c.....	Jan. 19—Feb. 17
Belcher, G. H., Dec. 2, \$1.....	Jan. 5—Jan. 24
Cherokee Flat, Butte Co., Dec. 8, \$5.....	Jan. 9—Jan. 27
Cons. Virginia, Nevada, Dec. 9, \$1.50.....	Jan. 14—Feb. 4
Concord, W. C., Dec. 31, \$1.....	Feb. 6—Feb. 28
Daney, Nevada, Jan. 10, \$1.50.....	Feb. 14—Mar. 4
El Dorado, Va. City, Oct. 24, \$2.....	Jan. 16
El Refugio, Santa Cruz Co., Jan. 18, 65c.....	Feb. 21—Mar. 14*
Imperial, G. H., Nov. 22, \$10.....	Dec. 27—Jan. 18
Jennie A. Con., Dec. 31, 10c.....	Feb. 6—Feb. 27*
Kinead Flat, Tuol. Co., Jan. 12, \$2.50.....	Feb. 16—Mar. 4*
N. L. Alpine Co., Oct. 18, \$1.....	Jan. 31
Maxwell, Amador Co., Dec. 12, \$2.....	Feb. 7—Mar. 11*
Meadow Valley Ex. Nev., Dec. 21, 50c.....	Jan. 23—Feb. 13
Nevada, Nevada, Jan. 19, 2 1/2c.....	Feb. 20—Mar. 13*
Noondaw, Nevada, Jan. 19, 20c.....	Feb. 23—Mar. 17*
North Bloomfield, Nevada Co., Dec. 10, \$2.....	Jan. 12—Jan. 29
Ophir, Placer Co., Dec. 13, 40c.....	Feb. 6—Feb. 27*
Ophir, Virginia City, Jan. 11, \$2.....	Feb. 14—Mar. 7
Overman, G. H., Dec. 8, 50c.....	Jan. 11—Jan. 30
Placer, Placer Co., Jan. 4, \$5.50.....	Feb. 15—Mar. 11*
Providence, Nevada Co., Nov. 12, \$1.....	Dec. 21—Jan. 5*
Seg. Belcher, G. H., Nov. 18, \$1.....	Dec. 21—Jan. 10
Silver Wave, W. P., Dec. 10, \$1.60.....	Jan. 11—Feb. 8
St. Patrick, Placer Co., Dec. 27, \$1.....	Feb. 1—Feb. 20*
Virginia, W. P., Dec. 17, 50c.....	Jan. 23—Feb. 14
Washington, Nevada Co., Dec. 12, \$3.....	Jan. 16—Feb. 6
Wheeler, Nevada, Dec. 13, 50c.....	Jan. 13, Jan. 30

MEETINGS TO BE HELD.

Eagle Quicksilver.....	Special Meeting, Jan. 23
LATEST DIVIDENDS.—(Within Three Months).	
Black Diamond, 1/2 per cent.....	Payable Jan. 7
Chollar-Potosi, 5%.....	Payable Jan. 10
Chollar-Potosi, 5%.....	Payable Jan. 16
Eureka, div. 5%.....	Payable Jan. 16
Golden Chariot, div. \$1.....	Payable Jan. 10
Hale & Norcross, div. 5%.....	Payable Dec. 10
Meadow Valley, \$1.....	Payable Jan. 9
North Star, \$1.50.....	Payable Jan. 10
Sierra Nevada, div. \$1.....	Payable Jan. 16
Yellow Jacket.....	Payable Jan. 10

*Advertised in this journal

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Leather Market Report.

[Corrected weekly by Dilliver & Bro., No. 109, Post st.]
SAN FRANCISCO, Thursday, Jan. 19.

SOLE LEATHER.—The demand is good and the stock on hand light, on account of heavy shipments to the east. Prices rule firm. We quote:

City Tanned.....	26	@29
Anta Cruz.....	26	@29
Country.....	26	@28
CALF AND KIP SKINS. —French stocks continue scarce and high on account of the lack of exportation from French ports which has almost entirely ceased. We quote:		
Best French Calf Skins, 3 doz.....	75	00@100 00
Common French Calf Skins, 3 doz.....	35	00@ 75 00
French Kips, 3 doz.....	1 00@ 1 30	
California Kip, 3 doz.....	60	00@ 80 00
California Calf, 3 doz.....	1 00@ 1 25	
Eastern Veal Studied Calf, 3 doz.....	80	@ 1 00
Eastern Calf for Backs, per lb.....	1 15@ 1 25	
Sheep Roams for toppling, all colors, 3 doz.....	8 50@ 13 00	
Sheep Roams for linings, 3 doz.....	5 50@ 10 50	
California Russet Sheep Linings.....	1 75@ 5 50	
HAWKNESS LEATHER, 3 doz.....	30	@ 37
Fair Bridle, 3 doz.....	30	@ 40
Skirting, 3 doz.....	4 50@ 4 75	
Welt Leather, 3 doz.....	30	@ 50 00
Buff Leather, 3 foot.....	22	@ 26

San Francisco Metal Market.

PRICES FOR INVOICES

Shipping prices rule from ten to fifteen per cent. higher than the following quotations.

IRON. —Duty: Pig \$7 per ton; Railroad, 60c @ 100 lbs.; Bar, 1 1/2c @ 100 lbs.; Sheet, polished, 3c @ 100 lbs.; common, 1 1/2c @ 100 lbs.; Plate, 1 1/2c @ 100 lbs.; Pipe, 1 1/2c @ 100 lbs.; Galvanized, 2 1/2c @ 100 lbs.	
Scotch and Eng. Pig Iron, 3 ton.....	\$34 @ \$35 50
White Pig, 3 ton.....	@ 36 00
Refined Bar, bad assortment, 3 lb.....	@ 03 —
Refined Bar, good assortment, 3 lb.....	@ 04 —
Roller, No. 1 to 4.....	@ 04 1/2 —
Plate, No. 5 to 9.....	@ — @ 04 1/2
Sheet, No. 10 to 13.....	@ 04 1/2 —
Sheet, No. 14 to 20.....	@ 05 —
Sheet, No. 24 to 27.....	@ 05 @ 05 1/2
COFFER. —Duty: Sheathing, 3 1/2c @ 100 lbs; Pig and Bar, 2 1/2c @ 100 lbs.	
Sheathing, 3 lb.....	@ — @ 26
Sheathing, Yellow.....	@ 20 —
Sheathing, Old Yellow.....	@ 21 —
Composition Nails.....	@ 21 @ 22
Composition Bolts.....	@ 21 @ 22
PLATES. —Duty: 25c @ cent, ad valorem.	
Plates, Charcoal, IX, 3 lb box.....	12 00 @ —
Plates, I C Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Bacon Tin, Slabs, 3 lb.....	@ — @ 42
STEEL. English Cast Steel, 3 lb.....	@ — @ 15
QUICKSILVER.—3 lb.....	@ — @ 7
LEAD.—Pig, 3 lb.....	@ 6 @ 7
Sheet.....	@ 9 @ —
Pipe.....	@ 10 @ 11
Bar.....	@ 8 @ 9
ZINC.—Sheets, 3 lb.....	@ 10 1/2 @ 11
SORAX.....	@ 35 @ —

San Francisco Market Rates.

Wholesale Prices.

WHEAT. —Extra, 3 bbl.....	60 @ 65
Do. Superfine.....	59 @ 63
Wheat Meal, 100 lbs.....	2 1/2 @ 2 3/4
Wheat, 100 lbs.....	2 00 @ 2 20
Barley, 100 lbs.....	1 40 @ 1 50
Maize, 100 lbs.....	1 35 @ 1 45
Beans, 100 lbs.....	1 85 @ 2 50
Peas, 100 lbs.....	1 00 @ 1 50
Green Oak Wood, 3 cord, 100 lbs.....	10 00 @ 15 00
Feet, extra, dressed, 3 lb.....	8 @ 12
Sheep, on foot.....	2 00 @ 2 50
Hogs, dressed, 3 lb.....	7 1/2 @ 8
GROCERIES, ETC.	
ugar, crushed, 3 lb.....	@ 15
Do. Hawaiian.....	@ 12
Coffee, Costa Rica, 3 lb.....	@ 21 1/2
Do. Rio.....	@ 18 1/2
Do. Japan, 3 lb.....	65 @ 1 00
O. Green.....	60 @ 1 00
Javanian Rice, 3 lb.....	9 @ 10
China Rice, 3 lb.....	10 @ 11
Joat oil, 3 lb.....	50 @ 65
Andies, 3 lb.....	14 @ 18
Garland Butter.....	30 @ 35
Lard, 3 lb.....	10 @ 15
Starch Butter, 3 lb.....	25 @ 35
Heese, California, 3 lb.....	9 @ 15
Sage, 3 dozen.....	11 1/2 @ 13 1/2
Lard, 3 lb.....	31 @ 17
Ham and Bacon, 3 lb.....	9 @ 10
Shoulders, 3 lb.....	9 @ 10

Retail Prices.

Butter, California, fresh, 3 lb.....	50 @ 65
Do. packed, 3 lb.....	40 @ 65
Do. Oregon, 3 lb.....	20 @ 25
Cheese, 3 lb.....	20 @ 25
Honey, 3 lb.....	25 @ 30
Maple Syrup, 3 lb.....	18 @ 20
Lard, 3 lb.....	13 @ 20
Ham and Bacon, 3 lb.....	25 @ 35
Crabapples, 3 gallon.....	75 @ 1 00
Potatoes, 3 lb.....	2 @ 3
Potatoes, Sweet, 3 lb.....	2 @ 3
Fomatoes, 3 lb.....	2 @ 3
Onions, 3 lb.....	4 @ 5
Pine Apples, 3 lb.....	5 @ 6
Pears, Table, 3 lb.....	5 @ 6
Plums, dried, 3 lb.....	10 @ 12
Peaches, dried, 3 lb.....	10 @ 12
Oranges, 3 dozen.....	50 @ 75
Lemons, 3 dozen.....	50 @ 75
Chicken, spiced.....	75 @ 1 00
Turkeys, 3 lb.....	@ 25
Soap, Pale and C. O.....	10 @ 15
Soap, Castile, 3 lb.....	13 @ 20

SUCCESS IN BUSINESS.—Success in the business world usually depend upon being thoroughly prepared for its duties. Young men if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Bookkeepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine the workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22-3msn

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third Street, San Francisco. Every picture warranted to give satisfaction. 0v13-6m B. F. HOWLAND

AGRICULTURAL INDUSTRY

Successful Cultivation of the Desert.

The experiments which are now being made under the direction or encouragement of the Kansas Pacific and Union Pacific Railways in the cultivation of the great unwatered plains near the eastern base of the Rocky Mountains, are most encouraging, and lead to confident anticipations of complete ultimate success. These experiments have been undertaken, by the roads mentioned, to prove the practicability of the cultivation of those lands, and thereby give them a market value from which both the roads and the people at large will profit. The few isolated experiments thus undertaken will encourage the settlement of other sections, similarly situated, until the entire stretch of country across the "Plains," bordering upon the railroad lines, will be brought under cultivation and made tributary to said roads.

Success in those localities will lead to similar experiments on this side of the Rocky Mountains, until, in all probability, millions of acres in California, Nevada, Utah, and Arizona, now considered worth less for cultivation, will be made to contribute to the sustenance of our rapidly-growing interior population, and to the general commerce of the country.

Mr. R. S. Elliott, "Industrial Agent" of the Kansas Pacific Railroad Co., has recently submitted a report of what he has done in this direction, from which we condense as follows: Mr. C. seems to have selected three different locations on the line of the road—viz: Wilson Station, 236 miles west of the Missouri State line, and 1,586 feet above tide water; Ellis Station, 66 miles still further west, 2,019 feet above the sea; and Pond Creek, 82 miles still further west, and at an elevation of 3,175 feet.

Only a few acres of ground were broken up at each place, merely sufficient for experimental purposes. Owing to the lateness of the season, the work was not done as thoroughly as it should have been; yet the prospects thus far are most encouraging, and given as follows:

The first planting was done at Pond Creek, on the 26th of September, 1870, when four acres of wheat, three of rye and two of barley were sown—timothy being sown on the wheat. On the 19th of October (three weeks from sowing) the grain was up and doing well, and still doing well on the 14th of November. This experiment is being made without irrigation, in the very midst of the "dry plains," and in a soil the least promising on the entire line of the road—and 240 miles west of what has hitherto been considered the limit of arable effort, depending upon natural rain fall. A second trial upon a thoroughly rotted sod must be far more favorable.

At Ellis, on the 20th of October, three acres of wheat, three of rye, one of barley were sown; on the 22d and 24th more wheat and rye; also various grass seed—Italian rye grass, Lucerne, Alsike clover, Sacin-foin, vetches, etc., were sown. Three weeks from sowing the grain was up, and seen from the car windows as the trains passed; and the Lucerne was forming its third leaf. This experiment is also without irrigation. The fullest success is anticipated; and such a result, it is claimed, will establish the practicability of diversified agriculture throughout the entire region.

At Wilson, two acres of wheat, two of rye, one of barley, and one, each, of timothy and Lucerne, were sown also nuts and

seeds of trees—burr oak, pecan, chestnut, peach and alanthus were planted—all on the 11th and 12th of November. Nineteen days afterwards the grain was up and promising well, notwithstanding the late sowing. Winter wheat was sown in each case.

Mr. Elliott concludes his report with the expression of his belief that forests can also be established in nearly all parts of the plains—even without artificial irrigation, if deep plowing and thorough cultivation are adopted, and rapid growing trees selected for the first planting. Seedling trees at Bunker Hill Station, 252 miles from State Line, and 1,800 feet above the sea, and transplanted trees at Kit Carson, attest the practicability of tree belts, as snow shields, at the cuts along the track.

Wherever irrigation can be made practicable, in comparatively rainless countries, no doubt much better results may be obtained than can be realized from natural moisture.



O'HARA'S PATENT POCKET GIANT CORN SHELLER.

Along the line of the Union Pacific Railroad that company has under consideration plans for an extensive system of irrigation. In Arizona, works for irrigation have been set on foot under the direction of a Federal officer, for which an appropriation of \$150,000 has been made by Congress. In Utah there are already 130,000 acres under a judicious system of artificial irrigation, which are now producing annual crops valued at \$4,500,000. Irrigation is doing much for Colorado. A late number of the *Denver News* publishes some highly interesting facts, showing the trifling cost of irrigation compared with the favorable results obtained, in that Territory.

Every intelligent person is or ought to be aware of what has been done in India and China by artificial irrigation; and notwithstanding the advantages of cheap labor there, a similar plan and scale of irrigation on the comparatively rainless portions of this continent would do equally as much for us. We may not be able to convert our deserts into gardens of paradise; but we can cause flowers and fruits and grains and grasses and trees to grow, wherever water can be made to flow over our arid lands, and thus support large populations, where now all is desolation and waste. What irrigation has done for India, it may be made to do, at least to a reasonable extent, for us on this Pacific Slope.

Thousands of acres along the valley of the Humboldt, and in numerous other sections of what has generally been considered the desert land of the "Great Interior Basin," may, by proper culture and care, be made to yield bounteously of the diver-

sified fruits of the soil. We look upon the experiments now being made in this direction as of the highest importance and most fruitful in promise.

CORN SHELLER.

Our readers will remember that we showed them a device last week, which rendered the husking of corn a light task. We now take another step, and show them an invention which renders the *shelling* easy. The large engraving shows the progressive farmer, who, instead of banishing himself to his cold barn to shell the necessary turn of corn, (for which work he has had no time during the day), and wearing the skin off his hands, in the old way, —has adopted the new device, and now shells by his own fireside, amid pleasant company.

The small cut shows more plainly the construction of the device to which we re-



fer (which is known as O'Hara's Pocket Giant Corn Sheller), and the manner of holding it. It certainly commends itself to the favorable consideration of the practical farmer, who has to do his own work. It is small, light and cheap, is very durable, and enables one to work very rapidly. As evidence of this last, we have the testimonial of a farmer, of Ottawa, Ohio, who shelled 22 bushels of corn in four hours with it on the first trial. Many others might be given. It can be used in shelling for meal or seed with especial advantage, for any part of the ear can be shelled into one measure, and the rest into another, and thus the farmer can at once sort the grains, selecting the larger ones for seed, etc., etc.

Although only about a year has elapsed since the sheller first appeared, it has become very extensively used, 50,000 having been sold in this short time. We have been presented with one, and are inclined to consider it a very valuable little affair, which it is economy to possess. It is cheap, costing but \$1.50—a sum which it will probably save to the purchaser in a short time. It does not scatter, and will shell the largest Indian corn and the smallest pop corn.

Any person desiring further information may obtain it by addressing Chas. M. O'Hara, 114 W. Fourth street, Cincinnati, Ohio; or by applying to Wiester & Co., 17 New Montgomery street (Grand Hotel), San Francisco.

California Agricultural Notes.

LIVE STOCK IN CALIFORNIA.—The number of live stock in California, according to the Surveyor General's Report, (Marin, Plumas, Tuolumne and Shasta not included) is as follows: Neat cattle, 787,771; oxen, 11,345; beef cattle, 300,367; calves, 168,614; cows, 247,603; asses, 1,866; mules, 26,284; horses, 241,146; sheep, 2,975,753.

HOGS POISONED.—The *Snelling Argus* of January 7th chronicles an accident which has many a precedent: "We understand from a gentleman living in the neighborhood of Placerville, that our friend, A. Harrel, present Chairman of our County Board of Supervisors, had the misfortune to lose about fifty fat hogs by poison last week. The poison was phosphorus, put out in adjoining fields to destroy squirrels, gophers and other vermin."

THE CACTUS FENCE is an institution peculiar to Mexico. The variety of the plant used for this purpose is called the organo. It is eight-sided, and shoots up straight as an arrow, from ten to twenty feet in height and five to eight inches in thickness. The fence-builders cut their cactus in sections of the right length, stick the cut into a trench, cover the earth around it to the depth of a foot, and the fence is made. The pieces are set as closely together as possible, and as they take root and grow for centuries, the fence improves with age, instead of going to decay like many other fences.

CASTOR BEANS IN LOS ANGELES COUNTY.—The *Los Angeles News* says that the raising of castor beans is attracting something of attention hereabouts. Several farmers, who last season cultivated a few acres, have met with results that have been eminently satisfactory. In this section the crop must undoubtedly prove a profitable one. The plant will thrive upon soils that are too dry for many other products, and the cost of cultivation is said to be less than for the same number of acres in corn. A ready market, at remunerative rates, is always open.

LARGE FLOCK OF TURKEYS.—A man in the lower part of Placer has had a flock of turkeys numbering fifteen thousand, and has employed five men in herding them.

MERINO SHEEP.—A drove of 98 Spanish Merino sheep, selected from the best flocks in Vermont, were shipped to California overland a few days since.

CATTLE are perishing in Douglas county, Oregon, for want of feed.

TALL GROWTH.—Lombardy poplars, says the *San Jose Mercury*, grown from the slip, in this valley, the past season, have attained the height of fifteen feet.

NEW CROP OF ORANGES.—By the last steamer from Los Angeles, about 55,000 oranges and lemons, of the new crop, were received. The quality is, as usual, better than that of any others brought to this market, though not as good as they will be a few weeks hence.

SHEEP FROM LOS ANGELES.—The steamer *William Tabor* brought up 1,000 sheep from Los Angeles, one day last week.

TO PREVENT balls of snow on horses feet, let the hoof and fetlock be well cleaned, and then rub with soft soap previous to their going out in snowy weather.

Eastern Agricultural Notes.

CASTOR BEANS—REMARKABLE GROWTH.—The editor of *Howe's Monthly*, St. Louis, Mo., has raised the past season a castor bean plant which was 12½ inches in circumference at the ground, and 15 feet 3 inches high, and the aggregate length of the branches was 90 feet 8 inches; so that the whole longitudinal growth of the main stem and branches was 105 feet 10 inches. The branches were evenly distributed along the length of the stem, giving the tree (for such it may be called) a very symmetrical form.

APPLES.—Seventy-five bushels of apples, of fair quality, were recently sold by auction in Grafton, Vermont, for one cent a bushel.

AN ACRE of land near Newport, Rhode Island, lately sold for \$5,393.40.

THE RHINE VINTAGE.—The vintage of the Rhine for 1870 is a failure. German superstition avers that every year written with a cypher at the end is a fatal one for the vintage. The wine in 1860 was anathematized under the epithet of "Garibaldi," and that of 1870 will doubtless be cursed in the name of "Napoleon."

A MAN in Maine has a cow that in a twelve-month made as many pounds of butter as there are days in a year, besides fattening a calf to 1102 pounds.

POPULAR LECTURES.

Vaporization and the Elastic Force of Steam.

[Prof. JOHN LECONTE before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Physical Science.

LECT. I., Jan. 14th. In commencing this series of lectures, the Professor made some introductory remarks with reference to the branch of knowledge to which the lectures relate. Physical science, he said, treats of the phenomena of matter, of the external world, in distinction from the phenomena of the internal consciousness. Attention should be paid to the meaning of the term "law" in physics. The word was originally borrowed from civil and moral life, and then applied to physical facts. In morals, we understand laws to be rules laid down for the government of rational beings, and in accordance with which we ought to act. But natural laws are the rules, not according to which nature ought to act, but according to which she does act. If we find deviations from a supposed rule, this is proof that it is not a natural law. In this sense, it is absurd to speak of violations of the law of nature. The mixing of these two meanings of the term has given rise to much sophistical writing.

Physical Science is a science founded on observation and experiment. By observation we mean the careful scrutiny of what is going on in nature; by experiment, the artificial reproduction of these facts. The latter aids very materially the former, so much so that a science where experiments are possible, advances much faster than one where this is not the case. On this account, meteorology progresses very slowly. Climatic changes are so connected in all parts of the world, that we cannot expect very great advance here until all portions of the earth communicate by the telegraph, so that we can know of the meteorological conditions everywhere. Again, astronomy made but slow progress until it became a branch of mathematics, when it advanced more in 50 years than it had done previously in 2,000. The reason is obvious. When the phenomena are complex, we can divide them up into their factors by experiments, and study out the causes one by one.

The sources of errors in experiments may be classified under four heads. 1st. Those arising from the imperfections of our senses, which often tend to mislead; 2d. Those from the imperfections of our apparatus. These two classes of errors can be avoided in great measure by proper care and study. 3d. Those caused by our temperaments. Thus, in astronomical observations, it has often been noticed and acknowledged that a person of sanguine temperament is apt to anticipate, and one of lymphatic temperament to delay, the moment when, for instance, a star crosses the lines of the telescope. 4th. From a want of conscientiousness, a tendency to see things as we want them. In the present state of physical science, hardly any one would designedly state that he saw things which he did not see, yet the views of many are modified by their pre-existing ideas, by partiality, combativeness or bad temper.

Although observation and experiment supply facts, yet they do not make science, for science is not a mere collection of bare facts, but facts classified and reduced to order.

Physical science is necessarily connected with the science of numbers; all physical facts are capable of measurement. Hence this science demands a knowledge of at least the elements of mathematics. But for this reason,—as the human mind is not satisfied with the mere knowledge that, or what, a thing is, but desires to know how much it is,—physical examinations carry much satisfaction with them.

Physical science does not investigate the essence of things, does not tell what heat or gravity or electricity is (the function of metaphysics), but what heat or gravity or electricity does.

Boiling—Evaporation.

The lecturer, after these introductory remarks, proceeded to speak of the immediate subject of the evening. All are familiar with the fact, he said, that, in applying heat to water, alcohol, ether or like bodies, vapor is generated, with a distinct elastic force, in the body of the liquid, which vapor rises and causes that movement in the liquid which is called boiling. All know, moreover, that such liquids will generate

vapor, without boiling, on their surface, which action we call evaporation. In most liquids this will occur at all temperatures. It has often been observed that snow disappears from high places even at 20 or 30 degrees below zero, and laundresses know that the wet linen will get dry although it may be so cold that the water is frozen on them. Now boiling takes place at certain fixed temperatures, as at 212 degrees, Fahr., for water, or at 176 degrees for alcohol, while evaporation occurs, as before said, at all temperatures. The term *vaporization*, as used in these lectures, will include both boiling and evaporation.

The first point to be now considered is,—whether there is any limit to vaporization; whether we can make a liquid so cold that it will not give off vapor. Dalton and Sir Humphrey Davy adopted the idea that every body, even metals, give out vapor. Biot applied this idea in his theory of meteorites, supposing that through electrical agency the vapors of metals were collected and condensed, and the meteoric stones were thus formed. But Biot's theory has been proved entirely false.

Experiments about Evaporation.

The vapor theory alluded to has also been disproved. Bellini suspended, from the cork, a strip of bright polished zinc in a bottle over a little sulphuric acid. If the sulphuric acid always gave out vapors, these would of course attack and oxidize the surface of the zinc. But Bellini found that by proper care he could keep the zinc bright a long time; he did so for two years. Faraday made a similar experiment, suspending gold leaf in a bottle over mercury. At a temperature of 80 or 90 degrees, Fahr., vapors given off amalgamated the gold, but by reducing the temperature, the amount amalgamated was reduced, and at 60 degrees no amalgamation took place, therefore no vapors were given off by the mercury. Many other experiments made in a similar way with other substances showed the same apparent results—that by reducing the temperature sufficiently, no vapors were given out by bodies which vaporized at higher temperatures.

In 1854, Brame attempted to re-investigate the whole subject. He suggested that the above experiments did not disprove the existence of vapors, as perhaps these might still exist (at the low temperatures given) but in a state of such tenuity that they could not attack the bodies experimented with. So he took much more sensitive substances, and repeated the experiments, using, as a very delicate test, iodine and chlorine. Although his results did not always agree with the exact limits of temperature before obtained, yet they tended to the same general result,—that at sufficiently low temperatures no trace of vaporization could be found. He noticed one interesting fact in his studies—that at a certain low temperature the vapor rose, say, an inch above the body experimented with, and above this height no vapor could be discovered.

Most liquids evaporate, we said before, at all temperatures which we can obtain. But as we reduce the temperature, the amount of vapor given off decreases, and analogy (although analogy must be very carefully employed) would lead us to believe that none would be generated, if we could get a sufficient degree of cold. Thus, by using mathematical formula, we can calculate that water will not evaporate at 344 degrees below zero; but the lowest temperature we have ever obtained is 228 degrees below zero.

Cause of Evaporation.

Two wrong ideas of the cause of evaporation have been held. One was that this was caused by the water being dissolved in the superincumbent air. This idea, first suggested by Hamburger, in 1750, was adopted by eminent men, Halley, Le Roy, Dr. Franklin, Dr. Hamilton, of Dublin, and others, and by it many phenomena can be explained apparently. Thus, the wind blowing, evaporation goes on faster, for fresh air is constantly being brought in contact with the water. Heat increases evaporation, for hot air would dissolve more water, etc. The second idea was, that the superincumbent air absorbs moisture from the water like a sponge, and this too would appear to explain many facts.

But after a while, a blow was given to these ideas by the discovery that evaporation will go on *without air*. The true theory of evaporation was published in 1802, by John Dalton, of England, and his experiments to prove it can be here repeated.

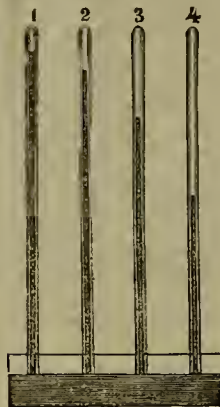
Simple Experiment.

We have here a number of long glass tubes, closed at one end. One of these tubes we fill completely with mercury, invert, closing the open end tightly with the finger that the mercury cannot run out nor air enter, and insert the end closed with the finger in a bath of quicksilver. Now, on withdrawing the finger, the mercury falls a little distance, until the pressure of the column of quicksilver in the tube balances the pressure of the air on the bath. This apparatus is then a barometer, and the space over the mercury in the tube is of course a vacuum, for no air can be there. If we apply heat at this point, the level of the mercury will not be changed. In the accompanying cut, this tube is denoted as tube 1.

Now we take a similar tube, nearly full of mercury, and add water until it is quite full. Closing the open end, inverting and placing in the bath as before, the water rises to the top, but the space above the mercury, instead of being smaller (for water weighs only about one-fourteenth as much as quicksilver) is much larger, as denoted in the cut by tube 2. Now this cannot be caused by the (inferior) weight

of water. It must be that the water has changed, in part at least, to vapor, the elastic force of which presses down the mercury. No air can be there, and this proves that the presence of air is not necessary for vaporization. If we beat the upper part, the mercury is forced down still lower, giving additional proof of the presence of vapor.

Repeating this experiment in tube 3 with a little alcohol in the place of the water used in tube 2, the mercury is depressed still lower; and in tube 4, with ether, it rises only a short distance in the tube. Now if we should heat the spaces in tubes 2, 3 and 4, to the boiling points of the liquids used, what would be the result? In each case the mercury column



would be lowered until its top was on a level with the mercury in the bath.

These simple experiments, then, disprove wholly the two theories just spoken of, for they show not only that the presence of air is not necessary for vaporization, but that its absence—a vacuum—*aids* vaporization.

The True Cause

of vaporization is the repulsive force of heat overcoming the feeble attraction of the particles of substances.

These experiments of Dalton's, moreover, enable us to measure the elastic force of the vapors at different temperatures. If we use a graduated tube and place it in a larger tube, having the space between the two filled with a liquid heated to different degrees, we can thus measure the elastic force up to the boiling point. We can also measure the weight of each cubic foot of water for different temperatures. This we can also find for other substances. For the weight, we have the proportion,—the elastic force at 212 degrees (found by experiment) is to the elastic force at the temperature desired, as the weight of steam is to the required weight. In these ways indicated, we find the values given in the following table for water vapor.

Temp. Fahr.	Elastic Force. In. Mercury.	Difference. In. Mercury.	Wt. of cu. ft. of vapor in grs.
30°	0.167	....	1.969
40	0.248	0.081	2.862
50	0.361	0.113	4.089
60	0.518	0.157	5.756
70	0.733	0.215	7.992
80	1.023	0.290	10.949
90	1.410	0.387	14.810
100	1.918	0.508	20.790
212	29.922	.....	257.16

Law of Elastic Force of Vapor.

Many formula have been given for reckoning the increase of this elastic force at increased temperatures. Dalton suggested an increase by geometrical progression, which is perhaps near enough for the small ranges, but not for the larger ranges, as can be seen by making calculations and comparing the results with the differences given in the third column of the above table. The lecturer spoke at considerable length on the topic, and showed how drawing curves on paper to a given scale, and comparing those found by experiment with those according to any given formula or ratio, would aid in getting accuracy in this matter.

The study of vaporization at low temperatures shows two things,—that all volatile liquids vaporize instantaneously when put in a vacuum; and that, at the same temperature, the vapors of different liquids have different elastic forces. Dalton proposed another law which is pretty nearly true,—that different vapors, at temperatures equally removed from the boiling points of the generating liquids, have nearly the same elastic force.

NAPA TWENTY YEARS AGO.

Napa City, Jan. 2d, 1871.

EDITORS PRESS:—Nearly twenty years have now passed away since I first visited this beautiful valley. In May, 1851, in company with some friends, I started for a visit to the Gysers. We gathered additions to our number on our route through the valley, and the second morning after we left McDonald's we were fourteen in number, all well mounted,—a genial set of ministers, teachers and doctors, with two old hunters acting as guides. The sexes were equally represented—there being seven couples, if the writer is mated with the infant Ann McDonald, then in arms.

Wonder what has been her history since?

At this distance of time, I clearly remember many pleasant incidents of that trip. The luxuriant growth of wild flowers, oats and peas; the vivacity and gallantry with which the younger gentlemen vied with each other in plucking the first of some new specimen of wild flowers, as a present to the fair lady accompanying.

Then the herds and herds of deer, seen in the course of that morning ride, and the three grizzly bears which our guides brought down, within an hour's ride of Mr. McDonald's, will serve as samples. A spare rib from a half-grown bear, and a saddle of venison, taken a little farther on, gave proof that we should not lack food in the wilderness through which we were passing. We spent the night at the Gysers; camping under a magnificent buckeye on Professor Shepard's claim. We hoed his patch of corn and repaired his fence.

We were delighted with our trip and unanimously resolved to come again next year, and stay at least a week on the grounds; but I have not been there since. At that early day a few pioneers had made experiments in tilling the soil. Mr. Younts had made a beginning; Mr. Hopper had a few acres of wheat which gave good promise of an abundant yield; Mr. Richie, whose two daughters were in our company, and Mr. Kellogg, with his thousands of vines, are among the names which still linger in memory.

What a change has been wrought in twenty years! Now I propose to go through this valley again, and make note of the prominent industries and to gather facts for publication in the "PRESS." You need not head these letters "All about Napa," for it may not be best to give you *all*, even if I were able to do it. Neither am I quite sure that all of what I may write will be so strictly confined to my text, as to merit that title. Well, so much for a preface and by way of getting my hand in again. In my next I shall proceed straight to business and give you "Something about Napa." J. R.

A NEEDLE IN A WOMAN'S HEART.—In the post mortem examination of Mrs. Margaret A. Jones, of New York, who was recently killed by her husband, Dr. Beach found a needle imbedded in the fleshy part of her heart.

POISONED BY EATING BUCKWHEAT CAKES.—Fifteen men were poisoned right unto death, recently, by eating buckwheat cakes—the cause, as examination proved, being that deadly night-shade berries had been unintentionally ground up with the buckwheat.

CONCORD COACHES FOR AFRICA.—A Concord, (N. H.) coach-maker is building six coaches for use in the diamond region of South Africa.

THE TOMATO is supposed to be a modern fruit, but it is mentioned in a book printed in London in 1,600 as having been long known.

NOTABLE BEGINNINGS.—California records for 1870 will include three memorable industrial events—the shipment of the first bale of home-raised silk; the raising of the first successful crop of cotton, leading to the planting of several large tracts of that staple; and the first success in the manufacture of beet sugar.—*Bulletin*.

WHO OWNS THE REAL ESTATE.—It has been estimated that there are nearly six million owners of "Real Estate" in the whole Union—and of this number more than two-thirds are the Farmers of the Union who are the free-holders of the soil of our Country.

A SMART GIRL.—The Antioch Ledger says, Agnes Lewis, a girl of sixteen summers, has plowed over 100 acres of her father's ranch near Antioch, driving six horses attached to a three-gang plow.

MARTIN FRATIN, the champion hunter of Siskiyou county, Cal., has killed during the present season 67 deer and 9 bears.

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY..... GEO. H. STROGO
W. B. EWER..... JNO. L. BOONE.

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, Jan. 21, 1871.

Gold and Legal Tender Rates.

San Francisco, Thursday, Jan. 19, 1871.—Legal Tenders buying @91; selling @91½. Gold in New York to-day 110%.

Table of Contents.

ACADEMY OF SCIENCES; Sutro Tunnel Bill; Snow Plow, Ill.; Lamp Attachment to Sewing Machines, Ill.....	33
MECHANICAL PROGRESS.—Vacuum Fanning; Mining Locomotives; Transmitting Power by Compressed Air; Silk Solution in Photography; New Engine.....	34
SCIENTIFIC PROGRESS.—Micoeae Man; Eozoon Canadense; Absorption of Sulphurs by Gold; Vision under Water; Yale Expedition; African Explorations, etc.....	34
Bound East; Notes of Travel in San Joaquin County.....	35
MINING SUMMARY; Mining Share Market; Stockholders' Directory.....	36-37
AGRICULTURAL INDUSTRY.—Successful Cultivation of the Desert; Corn Sheller, Ill.; California and Eastern Agricultural Notes.....	38
Vaporization and Elastic Force of Steam, Ill.; Napa Twenty Years Ago.....	39
New Mineral Cinnabarite; Railroad Matters; Hotel Life in '49.....	40
Thompson Road Steamer; Notes on Contributions to our Cabinet; Neat Work; African Diamond Fields.....	41
HOUSEHOLD READING.—Dried Beef; Soups; Poison; Biliousness; Cloves; Household Receipts; Mechanical Hints; Life Thoughts, etc.....	43
Mining in Venezuela.....	44

A New Mineral—Metacinnabarite.

We have been shown a pamphlet (a reprint from the *Journal für Praktische Chemie*) concerning the occurrence of amorphous sulphide of quicksilver in nature, written by Dr. Gideon E. Moore, who will be remembered by many of our readers here and in Washoe. As far back as 1853, Prof. Whitney noticed, at the Redington mine, Lake county, a black mercury mineral, which was thought to be an isomorphous mixture of sulphide and selenide of quicksilver analogous to onofrite. Dr. Moore has analyzed the mineral, and comes to the conclusion that it is black sulphide of quicksilver which has never been known before except as a product of the laboratory. The following comparison of the red sulphide (cinnabar) with the black will show the chief points of difference: Red,—crystallized or crystalline, perfect cleavage, diamantine lustre inclining to metallic in dark-colored varieties, cochineal-red color, scarlet-red streak, $G = 8.1$. Black,—always amorphous, no cleavage, metallic lustre, grayish-black color, black streak, $G = 7.7$.

The characteristics corresponding so well with the amorphous sulphide of the laboratory, Dr. Moore has ventured to consider it a new species (as in the case of graphite and diamond), and names it metacinnabarite. It occurs in considerable quantities in the Redington mine, generally on iron pyrites, and with small cinnabar crystals on it. The Doctor presents the following theory of its formation:

The pyrites were evidently first deposited, perhaps from solution, for they form a layer on which the mineral rests. Mercury vapors entering a cold chamber, thus lined, condense not to the red, but to the black modification, as shown by Fuchs' method for preparing this artificially. When the temperature is raised, the red modification commences to form, and so we find the cinnabar crystals on our black metacinnabarite.

SHASTA LAND OFFICE.—The President has appointed Chas. McDaniels surveyor of the land Office established at Shasta. Our northern friends will now have better accommodations in land surveys and completion of titles.

Railroad Matters.

It is stated that, during 1870, 6,000 miles of railroad were built in the United States. Illinois leads off with 1,371½ miles built and 366 miles more graded. The Northwestern States alone laid 3,984 miles of track and graded for 2,000 miles. The *Bulletin*, commenting on these figures (which are from the *Chicago Railway Review*), adds that track has been laid, in general figures, for 40 miles on the California and Oregon Road, 20 on the San Joaquin Valley, 42 on the Vallejo and Marysville, 30 on the Southern Pacific, 18 on the Los Angeles, Wilmington and San Pedro; 15 on the Petaluma and Santa Rosa; 3½ on the San Rafael and San Quentin, 3½ on the Stockton and Copperopolis; total, 172 miles. Besides this, considerable grading has been done. Oregon has built about 100 miles, and Nevada 35.

The affairs of the Northern Pacific Railroad seem to be getting into some tangible shape for the public. Work on the eastern end is being pushed. The company have purchased the St. Paul and Pacific Railroad, which is finished some 300 miles in Minnesota, and now have two branches, to St. Paul and to Duluth, which unite in Western Minnesota. On the Duluth branch, track is being laid at the rate of one to two miles per day, we are told, several thousand men being employed. From this junction a third branch, to Pembina, on the British border, is also to be built. The main line runs west from the junction, through Central Dakota, and on this about 100 miles are graded and 40 miles of track laid. Through Montana, the Yellowstone Valley is to be followed, says the *Gold Hill News*, and near the Idaho boundary the road will branch again, 'one line following the Columbia to Portland, and the other striking directly across the Cascade Range to Puget Sound.' We presume that this means that the Snake River will be followed by the southern branch. On the western end we have the promise of speedy work, arrangements having been made and contracts let for the part of the road from the Columbia to Puget Sound. One terminus is at the new town of Kalama, on the Columbia, about six miles from the mouth of the Cowlitz River, and will follow this last river for some distance (a large force is now at work preparing this part) on the line to Olympia, if Olympia is to be the favored spot. We see that a Branch Railroad Co. has been incorporated at that place to "connect with the Northern Pacific at the nearest point." The Pacific Rolling Mills of this city have a contract for as many rails as they can furnish, and the rest are to come from New York, 2,500 tons having been already shipped.

The Central Pacific branch, otherwise the California and Oregon, is completed to Sesma, opposite Tehama, and trains were to have been running to this point. It is said that there is some doubt as to whether the road will cross the river here. The rainy season puts a stop to the grading and to the surveys. The last were stopped on the 6th ult., we believe, when we heard of the parties at Yreka. The *Union* of Dec. 7th says: Mr. Hood does not think the main line of the road will ever pass through Yreka; the expense of constructing it from here to Cottonwood would be enormous, while the cost of building it on the line run through Shasta Valley will be extremely light. These considerations make him think the Shasta Valley route will be selected.

Oregon seems to be determined to have other roads. The conflicting interests of the old West-side and of the Wallamet Valley Railroad Companies have been settled, and the building of a road on the west side of the Wallamet is reported to be certain. The subsidy of \$100,000 for this road has, however, been refused, but subscriptions are said to be made in amounts which secure its terminating at Portland.

The last spike on the road between Santa Rosa and Donahue was driven on the 11th ult., and on the next day the first locomotive ran over the road. On the 31st the opening of the road was formally celebrated, a party from San Francisco going up to participate in the festivities, which passed off quietly and pleasantly. Work was commenced on the road August 16th.

The California Central is a new road to be built from Benicia to Red Bluff, through Solano, Yolo, Colusa and Tehama counties. The company are said to have accepted from Benicia a grant of 1,200 lots, 75x100 feet each, in that town. A surveying party

commenced work at Red Bluff on the 7th inst.

On the short route between Sacramento and San Francisco, work was commenced Monday last, says the *Vallejo Recorder*, of Dec. 29th, on the route near the line of the Benicia and Suisun Wagon Road. It is suggested that it will be possible to find a proper route through the Moraga Valley (back of Oakland). The *Pacheco Gazette*, of the 7th inst., says: The corps of Central Pacific Railroad surveyors are still engaged with their work in the vicinity of Pacheco, and are likely to be for some weeks yet, as their instructions require them to examine every possible pass for the shortest and best route between the Suisun Bay shore and Oakland; and to make accurate surveys of such as do not exceed a grade of 30 feet to the mile.

The Central Pacific having launched their steamer *Thoroughfare*, goods are now transferred directly from their large pier (running from Oakland Point) to the Second street cut. This enables them to transport goods to loaded cars directly from China and Japan steamers, and is otherwise most convenient.

The San José and Alviso Railroad Co., according to the *Patriot*, have already made a beginning, by surveying the line from the city to the bay, and the determination is expressed to push the work forward to completion as rapidly as possible. The *Patriot* understands that sufficient capital has already been secured, and trusts that the road may soon be in operation.

The Stockton and Copperopolis road has had another revival, this time a permanent one, we may hope, the California Pacific people taking a hand. The old incumbents having been cleared off, the inauguration of the road, or the part about 3 miles long laid to the city point, was celebrated at Stockton on December 15th. Over 14 miles were graded and about 8 miles of track laid a couple weeks ago. The *Independent*, of the 16th, announced that the grading had been suspended until the surveys are completed and the exact route definitely fixed. There is some talk of extending the road hereafter in both directions.

There have been rumors of another change in the route of the San Joaquin Valley road. In regard to the route of the Southern Pacific south from Gilroy, the *Sacramento Record*, some time ago, suggested the following: The third, and the one that likely has been selected, is that from Gilroy through a pass in the mountains to the Salinas Valley, Monterey county; up the Salinas to the boundary line of this county; thence to the Paso Robles Hot Springs; thence through a pass to the Santa Lucia Mountains to the Morro; thence through the Osos Valley; thence down the coast to the Arroyo Grande; thence to the Huasung; thence up the Santa Maria river, through San Buenaventura Pass, to the coast; thence to the city of Los Angeles; thence down the coast to San Diego; thence through Warner's Pass through the most fertile and populous portions of Southern California.

The Stockton *Republican* says that the people on the west side of the San Joaquin River appear to be in earnest in reference to having a railroad up the valley, to terminate at Antioch. A public meeting was held at Ellis, lately, for the purpose of organizing a company to build the road. A gentleman who had been over the route explained to the meeting that Antioch could be reached in an air line, distance twenty-eight miles, without grade or obstruction of any kind, and would pass in close proximity to the coal mines. The requisite number of shares to obtain the franchise was subscribed and the right of way was given.

The suit between the city of Los Angeles and the Los Angeles and San Pedro Railroad was dismissed last month, there not being "least cause for bringing a suit." The business transacted by this road for the past year—giving an approximate idea of the whole business of this district—aggregates 7,050 tons of exports, including 283,000 gallons of wine and brandy, 7,000 bales of wool, 32,000 sacks of corn, barley and rye, 16,000 cases of oranges and lemons, 5,000 hides, and 2,000,000 lbs. base bullion. The imports were 10,600 tons, exclusive of 6,000,000 feet of lumber.

The California and Arizona R. R. Co. have petitioned Congress to subsidize their proposed (narrow-gauge) road from Wilmington, Los Angeles Co., to Wickenburg, Arizona, with a branch, from some convenient point on the trunk to Owens' River, striking that stream about 50 miles above Owens' Lake, and having a total length, inclusive of branch of 500 miles. Their petition treats of the mineral resources and traffic of the country and states that the track from Wilmington to Owens' River, via Los Angeles, now gives con-

stant employment to 50 ten and twelve mule teams, over a heavy, difficult road, about 275 miles long, and the weight of the bullion transferred largely exceeds that of the supplies furnished. With a railroad, large quantities of ore could be profitably sent from the mines to be smelted at San Francisco. The petition was presented to Congress on the 6th inst., and was referred to the Committee on Public Lands and ordered printed.

[Concluded next week.]

Hotel Life in '49.

We have received from A. L. Bancroft & Co., 721 Market street, an interesting volume,—the History of San José and Surroundings.* The book is pleasantly written, and forms a valuable collection of facts concerning the city of San José and the valley of Santa Clara, one of the richest of vales, and one which contains the most ancient Pueblo in the State. A hasty perusal of pages here and there calls to mind many facts forgotten and brings up many reminiscences of similar events. We give an extract concerning hotel life, which is not entirely unknown even now in some parts of our coast.

The principal hotel of San José, the City Hotel, was a frame building, one and a half stories high. The table was remarkably good,—equal to many of the present day. Vegetables were the scarce articles. Although very good, the boarding was expensive. The price was five dollars in gold per day; that is, board and lodging. The sleeping apartments were not equal to the eating; in fact, the house was not sufficiently large to accommodate one-half, nay, one-fourth of the boarders; the dining-room and bar-room floors were used to stretch out the weary eaters at night; not only occasionally, but regularly as the night came, and no deduction of price was made because a boarder was kind enough to get so low down. Whether a man had rested on the floor, or on the best bed in the house, he soon found that, although not caring much for a great deal of, or very elegant furniture, yet he did deem it absolutely necessary to have about him a pocket-comb; and when he was about to purchase that article, he never for a moment doubted whether to take a fine or coarse one. He found joint-tenants in that house, which claimed and took possession, though not registered; nor could they be ejected by the law, except the law of self-preservation. If a man scratched his head, nobody for a moment supposed it was for an idea. If there were no ideas running in his head, there were other subjects that attracted his attention. It was a hazardous undertaking to attempt to eat at the first table; the rush was so great, that crowding through the dining-room door put one in mind of trying to drive a four-horse team through a single door of a stable.

A dinner cost two dollars, a good bed for a night's lodging the same; but one could obtain a cot, or bunk with blankets, one night, for one dollar. Eggs were worth 50 cents each, vegetables of all kinds were scarce and high; potatoes were the principal vegetables eaten, and the only class that appeared to be found at all times; a few onions at 25 or 50 cents each could be had. Beef and mutton were the only meats, with the exception of, now and then, chickens, wild duck, rabbit and squirrels, at high rates.

* With Biographical Sketches of Early Settlers. By Frederick Hall. Illustrated. A. L. Bancroft & Co., S. F., 1871. 800 pp. 537.

LEADED.—From thirty to forty men are now lying on the broad of their backs sick, owing to being leaded, caused by working in the mines of this district. The peculiarity of the mines here are that men on an average cannot work over twenty days in any mine or mill in this district without suffering from an attack of leading. Whether this is caused by foul air or like cause we have not ascertained for a certainty, but judge that it is owing to the peculiar kind of rock or ore which they work. Miners will have to use the utmost care in keeping regular in their habits of all kinds, and when an attack starts in, let them start in with the doctor's advice immediately. By observing the necessary caution they will save themselves many a day of suffering.—*Pioche Record*.

WE have received from Bradloy & Rulofsou, photographers of this city, a photograph of Wm. Halford, the only survivor of five persons who sailed from Ocean Island to Honolulu, a distance of 1,500 miles, in a small boat, to obtain succor for the U. S. steamer *Saginaw*, lately wrecked.

The Thompson Road Steamer.

On the 10th, Tuesday, a rather strange-looking affair might have been seen traveling along the railroad bridge of the C. P. R. R. at Oakland Point, and backing, turning and progressing over the sandy streets of our sister city. The Tide Land Reclamation Company had taken their Thompson Road Steamer from the U. S. bonded warehouse, and sent it across the Bay, where it is soon to be tested as to its powers and capabilities for plowing. The evolutions gone through on this occasion, were principally to satisfy the curiosity of a few persons, and to "give a ride" to a few privileged individuals, among whom was one of the proprietors of the Press.

This steamer, the first on the coast, has been brought hither through the enterprise

of 8 and of 12 horse power, which draw loads of 20 and of 30 tons, respectively, on an ordinary level road, and 12 and 17 tons up inclines of 1 in 12. The speed is $2\frac{1}{2}$ to 6 miles per hour for freight steamers, and 10 miles for passenger service. The consumption of coal is about $\frac{1}{2}$ ton daily. The prices are \$5,000 and \$6,500 at the works in New Jersey. All the steamers can be fitted so as to work as stationary engines for driving any kind of machinery.

An important feature of this machine, especially important for our coast, is its ability to run over sandy and rough ground. This was shown well at Oakland, and has been proved elsewhere in many cases. Indeed, not only does it travel over soft roads without injuring them, but it actually repairs and improves them. Some artillery officers, says the London Times, were

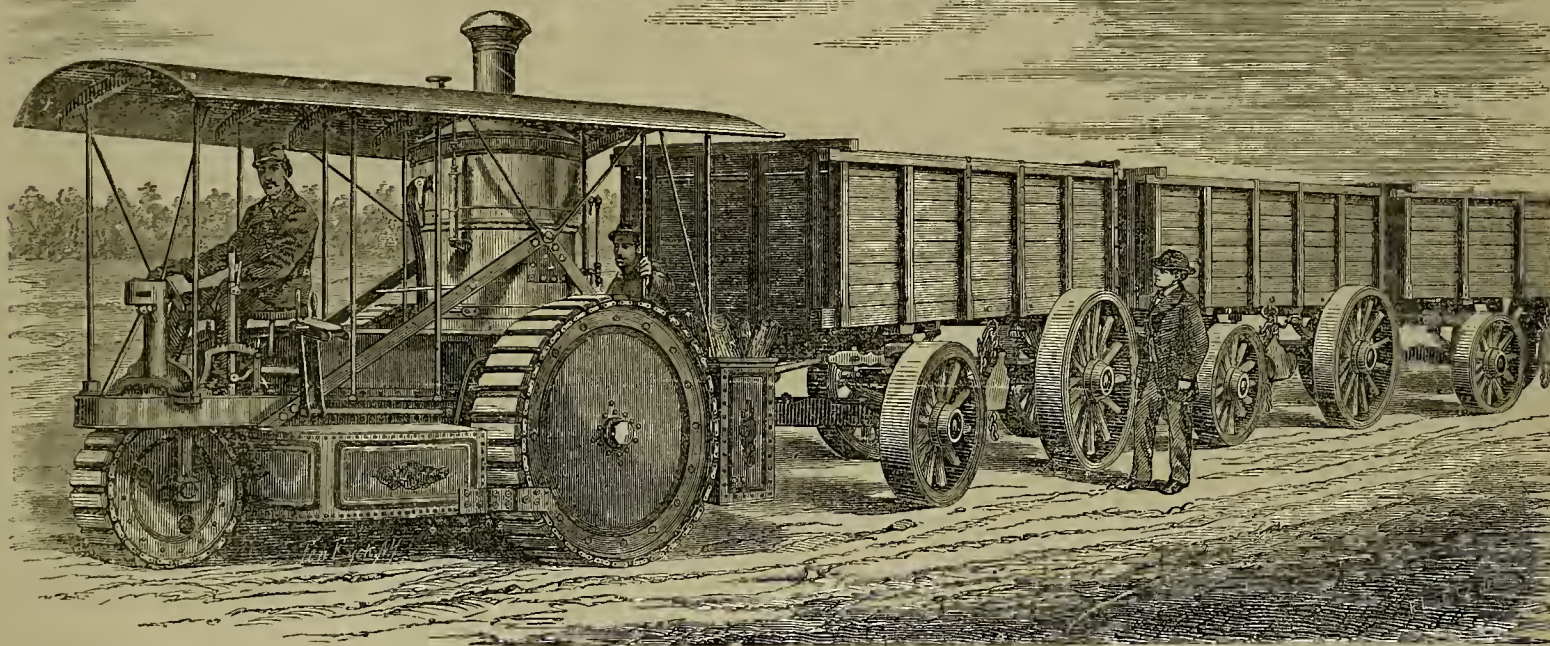
making six trips daily from Aberdeen, Scotland, to some flouring mills, three miles distant, and carrying a load of ten tons each time. The road on which it travels is described as "perhaps the worst road in the kingdom," being narrow and crooked, and with gradients for one-half the distance varying from one in nine to one in eight. Up these inclines the steamer, which weighs six tons, takes in tow a load of ten tons. It may help to realize what one in eight represents, to mention that the steepest grade over the Simplon pass, in Switzerland, is one in thirteen. This case will fit many of our mining conditions.

Last Saturday, the steamer was taken out by Mr. Roberts, for a little trip over the worst roads and across fields, and was attached to the plows in one case, where

Notes on Contributions to Our Cabinet.

We have received from Mr. Chas. A. Aaron several interesting specimens, Nos. 514 to 517. These come from Blind Springs District, Mono county, and the "rebellious" ores which they represent are worked successfully in accordance with the method denoted in the work of Aaron and Mack on the treatment of so-called rebellious ores in the district mentioned.

The specimens marked with the above numbers are all varieties of Stetefeldite. One is quite a characteristic specimen, while another contains, mixed with it, quite an amount of galena. Another specimen is yellow and earthy, and is probably principally antimoniates of lead (and silver), and merely a Stetefeldite which has been decomposed to a considerable extent. It



THOMPSON'S RUBBER TIRE TRACTION ROAD STEAMER.

of Mr. G. D. Roberts, President of the Tide Land Reclamation Company, who is not slow in going for a good thing when he sees it. With the steamer was sent a gang of eight heavy plows, with the necessary machinery for operating them.

We have previously given a description of this engine, and the results of experiments in drawing plows, etc., at Paterson, N. J., some weeks ago. We are now able to give an illustration, which will convey a clear idea to the reader of the looks of the steamer. The important feature of the rubber tire, with its enclosing endless-chain of steel plates, will easily be understood from the cut. This chain, the rubber tire, and the rim of the wheel they enclose, have no connection with one another. This is an item of very considerable importance, and to it is due in great measure the indestructible nature of the tire; for in running, especially with a heavy load, the tire slips gradually around the wheel, and this slip saves it where a very sudden and exceedingly great strain might tear it.

The steering apparatus is simple, and the steamer can be turned very sharply, its inner driving wheel describing a circle of a radius less than three feet. The gearing and working parts are strongly constructed and protected from dirt and the weather. An ingenious device in connection with the exhaust steam suppresses almost entirely the noise caused by its escape. There is a single gear for quick speed and a double gear for heavy loads. Either of the driving-wheels can be thrown in or out of gear, so that, in turning corners, the inner wheel is out of gear while the outer wheel drives the steamer around. Two sizes are made,

much struck by this fact when observing a road steamer, with a heavy vehicle attached to it, being driven round and round in a field thoroughly saturated with melted snow. The road steamer left the merest track in the slushy ground, while the wheels of the vehicle behind cut it into deep ruts. But as the engine passed over these ruts, when retracing the circle, it effaced them, and by and by being detached and allowed to run over the spot alone, it repaired the surface and made it perfectly smooth and even.

For mining and agricultural purposes, for drawing loads, even for military purposes, the road steamer has been used successfully. It can travel over rough or smooth, hard or soft, steep or level roads. In Europe and elsewhere it is rapidly coming into use. The manufacturers in England have been obliged to give a firm in Scotland the right to build the steamers, as they are unable to fill themselves the numerous orders sent in. We have now likewise in the United States a manufactory, where the machines are built, and an agency has been established on the Pacific Coast, where, on the level stretches, the steamer promises to be of the greatest utility.

The experiments in running over rough, sandy and muddy roads, and up steep inclines, tend to show that for mining purposes, for factories, etc., as well as for agriculture, the engine would be of the greatest value. Many a mine now lies idle, which might be profitably worked could the ore be transported at cheaper rates. We find that a 8-horse power engine has been in use for many months,

the soil was very soft, to see if it would be able to get through. It performed all its evolutions to the perfect satisfaction of those present, plowed a little, ran through ruts and mud-holes, ran off at a lively rate with a 5-ton road-roller, and otherwise acted in a brisk and happy manner. The regular trial, however, is yet to be made, and as the Press has been invited to attend when this comes off, our readers will have a full account.

We have only to add, that D. D. Williamson, 32 Broadway, N. Y., is exclusive manufacturer for the United States, and that Mr. Wm. A. Barnaby, Stockton, Cal., is agent for this coast. For the present, any communications to Mr. Barnaby should be addressed to the care of this office, where they will be properly cared for and forwarded to their destination.

NEAT WORK.—A very handsome beam engine, 10x22 inches, has just been built at the Miners' Foundry (coöperative) for the City Gas Company's works at the Patro, under the supervision of Mr. P. B. Bruner, engineer for the gas works and superintendent of the Pacific Rolling mill. This is the handsomest of the kind, perhaps, ever turned out on the coast. It is highly finished, of the best material and workmanship, neatly fitted in all its parts, provided with the Dunbar Packing, Sieberts Eureka Lubricator, steam-jacketed cylinder, etc., and is a credit to the works at which it was built. Although not "firefired," every care has been taken to render it worthy of the room, in which it is to be placed, which room is to be handsomely furnished in all respects.

gives, with the blowpipe, the reactions of lead and antimony very distinctly; and this change of Stetefeldite into antimoniates in this way, by further decomposition, is well known in Nevada.

These ores of Blind Springs are very rich, in part at least, apparently, for one of the specimens is marked as assaying about \$1,600 per ton. They would be considered especially "rebellious" (if Mr. Aaron will allow the term) with their combinations of antimony, sulphur, copper, lead, etc.

No. 518 is a very handsome piece of re-tort-silver, given us by Mr. Aaron to show that his process produces fine bullion, even with such ores. It certainly is very fine-looking silver, and assays about fine.

No. 519 comes from the Esmeralda mine, about 20 miles southwest from Helena, Montana, and was presented by Mr. James S. Russell. It came from a depth of 60 feet from the surface, and is a piece of iron-stained quartz, in which the "color" shows out finely.

*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., when sent adds much to the value of such specimens.

THE AFRICAN DIAMOND FIELDS.—After all the glowing stories of the heaps of diamonds found in the South African fields, we see it stated that the gems prove, on scientific examination, to be merely "lumps of translucent quartz." How far this is true, we cannot say with authority, but it is easy enough to test the matter without room for question. If the assertion prove true, it will be a sorry story for many.



BY OUR LADY EDITORS.

The Donner Tragedy.

A THRILLING CHAPTER IN OUR PIONEER HISTORY.

(Written for the Press.)

The sufferings of the Donner party, who were snowed in, and detained on the mountains more than three months, in the winter of 1846-7, has been much talked about, and some garbled stories have been published; but from the very nature of the case, anything like a true history was difficult to come at. My informant, who was one of the general company to which the Donner party originally belonged, says that she has never seen anything like a true or competent history of that most horrible period in the lives of these unfortunates. The following she is ready to vouch for, as truth; and if anyone desires further information, or confirmation of what is already given, her name and address will be at their service.

By retracing, though but in idea, the difficult and dangerous steps of the early emigrants, we are enabled more fully to appreciate the homes of comfort, competence and beauty, to which they have led us.

In the year 1846, about the 1st of May, 500 emigrants, under the guidance of Wm. Fowler, left Independence, Missouri, bound for California and Oregon. They all continued in one company until they reached Big Blue River, when the decline of pasturage made it necessary to separate into small companies, that of Mrs. C— being piloted by Wm. Fowler. They were all in advance of the Donner party, but after crossing the Salt Lake Desert the latter nearly caught up with them.

On going over the mountains, the Reed and Donner Company, when they came to the Devil's Canyon, known as Hasting's Cut-off, sent some men forward to examine the route. On their return, they represented the pass impracticable; and leaving the old road, they attempted to cut their way around the high peak, felling, or removing such timber as impeded their progress. In this toilsome work they spent eighteen days, thus exhausting their time, strength and provisions. This detention was one of the chief causes of their being caught in the snow, and of all their subsequent sufferings.

Reed and McCutchins came to their camps nearly starved, having made a meal of wheel-grease and mustard taken from Mr. C—'s wagon, which he had left on the mountain, intending to go back for it.

A Night in the Snow.

At night Mr. C— finding that his cattle had gone off, set out in pursuit of them, leaving his wife alone in that wild and horrible place. But the brave heart of the heroic woman was not easily to be dismayed. Patiently, hopefully, resolutely she watched the night through, with a kind of latent faith that her husband would be preserved, though he was exposed and unprotected to the pitiless snow storm, which, soon after he left, began raging with great fury; and the dismal howling of their faithful dog, heightened the horrors of the scene. But the brave heart fainted not; and every little precaution the occasion prompted or required, was patiently and quietly taken. She trimmed the fire; she watched and adjusted the warming and drying garments; she heated and replenished the evaporating tea; and several times during the night, she went out with a long-handled iron scraper, to scrape the snow from the tented roof, lest it should be broken down by the weight, and leave her without shelter.

Morning came; for the most protracted periods of anxiety and anguish must some time have an end; and aided by the earliest light, the straining eyes of the lonely watcher went out over the wild, for sight or sign of the wanderer; but no track appeared on the mountain road, that lay, still and solemn as death, draped in a winding sheet of spotless snow. Still she hoped—still she believed—that her husband would yet come; and once more, and again and again, she went to the place of lookout; but over all the ghastly whiteness of the scene no form of life appeared.

But look yonder, up the mountain road, to the remotest point of sight! Is that a man? a horse? Do they move? At first sight the motion was slow, so faint as to be nearly imperceptible. Ah, yes! her faith is rewarded at last. He is living! He comes! She flew to meet him, with whatever speed she could make through the depths of snow, and found him greatly exhausted and nearly insensible. He was soon put to bed, and by help of warm blankets, heated stones and hot drink, he partially revived and was able to give a coherent account of himself.

He had followed the cattle about twelve miles, and brought them to the brow of the long hill that overlooked their encampment; but in his weak and exhausted state he could not get them over the brink, from which they drew back in terror. Finally he became bewildered and lost in the storm. He had stood all night, hugging his horse, to keep up animal life; and it was with the greatest difficulty that he was able to regain his seat in the saddle, and keep it until he reached the camp.

Mrs. C—, being informed where the cattle were, put on snow-shoes and a pair of pantaloons, and after a hard walk up the mountain side, found the cattle, and drove them down without any difficulty.

A Strange Proceeding.

That afternoon, for fear of being snowed in, they killed an ox; and while they were preparing some of the meat for supper, Reed and McCutchins came to the camp, with two Indians and 30 horses, sent by Gen. Sutter for the relief of the suffering party. During the night the Indians took two of the best horses and decamped; and in the morning Mr. Reed, with his companion, set off for the snow-bound company, following the trail of the cattle about 12 miles. After traveling as far as the ox-trail reached, they concluded it was not safe to proceed further, and returning to the camp of Mr. C—, staid all night. But instead of hastening forward to the relief of the sufferers, who were but a short day's travel back, Mr. Reed left his provisions in the wagon of Mr. C—, and returned to Sutter's Fort. Mr. and Mrs. C— accompanying them. Here was another great and terrible mistake, to say the least. This was about the middle of November; and had Mr. Reed pushed forward to the rescue of the sufferers, including his own wife and children, more than 80 persons might have been spared three months of suffering, so horrible as to defy description. We cannot conceive of them. There were, doubtless, sufficient reasons for this strange behavior; but at the time the whole proceeding was draped in impenetrable mystery.

Snowed In.

Do any of you imagine what these two simple words may mean? Go with me, then, to the Donner camp; and we shall see. Is this a company of ghastly spectres that haunt the snowy wilderness with the writhing memories of inconceivable, inscrutable suffering? Their wan features, shrinking forms and the trembling limbs, all boken the deep corroding anguish of unappeased hunger. Their wild eyes burn in the sockets; and the dilating pupil nearly covers the iris. They are dying of starvation; and even on the wan and wasted features of the dead, the biting expression of the horrible hunger still remains.

They are now taking their morning meal; and yonder gentle matron—Mrs. Reed—ever more thoughtful for others than herself, is cutting off strips of raw hide, and dividing them into small pieces; and the children come around her with their little tin cups, to receive the precious morsel, that may sustain life a little longer. O, God! that little longer will lay many of them to rest in the sheltering snows!

They had killed all their animals; and their skins had been providentially saved. Hence the supply of raw hides. But at length even this became scarce, and, compared with what followed, was a luxury. Old boots and shoes, bits of saddles or harness, and fragments of leather in every form, were now gathered and rigidly economised. One of the company, who was a child at the time, but afterwards married and lived at San Jose, gave quite an account of the interior of the camp at this period. She said that she and a sister had a quarrel, and almost a fight, for the possession of a little shoe that one of them had found. She declared, too, that she, herself, had eaten a piece of her mother! It is believed that, driven to the last extremity, they devoured the bodies of their dead. But enough is known to show that their sufferings were drawn out to the most terrible strain that human anguish could support, or human strength endure. Let us, then, leave these awful secrets undisturbed, and gently draw a curtain over the revolting scene.

Mr. and Mrs. Brene, with their nine children, had encamped eight or ten miles behind the Donner party; and between the two camps there was kept up such an interchange of neighborly kindness, as the circumstances would allow. By this means the dreadful condition of the Donner camp became known to Mr. & Mrs. Brene. By a careful and wise economy, they had made their provisions hold out; and thus they were able, not only to sustain themselves, but to assist others. They took Mrs. Reed with her four children, and one adopted child, home to their camp, and kept them until relief arrived. Let no one say that economy is an ignoble virtue, remembering that by its help, six precious lives were saved. The woman who could look upon her own nine children and give to others what would shorten their allowance—possibly bring them to starvation—must have a great heart, indeed. It has been said that there is no greater love than this, that a man should die for his friends but; this is by far a nobler action and a diviner love. Mrs. Brene was, indeed, a noble woman; and her name should be inscribed in golden lettering on the page of history. By such high examples, the world is made happier and better; for she who could give to others what her own children might soon suffer for, deserves, and must soon receive, the crown of virtue.

Relief Itself Horrible to Behold.

About the middle of February, seven men and women, finding their condition intolerable, left the Donner Camp, hoping to reach the valley in safety; and out of the fourteen, only five women and two men, came into Mr. Johnson's ranch, then the first house on this side of the mountains, one-half of the whole number having perished by the way.

Mr. Johnson, on hearing the great distress of the snow-bound company, sent a messenger to Sutter's Fort, with an account of their terrible sufferings. When the news came in, the citizens volunteered for the rescue of the sufferers. Gen. Sutter, with his well-known promptness and liberality, offered them horses and provisions; and without delay seven men were despatched, Messrs. Glover, O'Brien, Montgomery, Curtis, and three others, whose names are not remembered.

These seven brave men set off on their difficult and perilous undertaking, and pursued their journey as far as Bear valley, with their horses and packs. But finding their route thence impassable for horses, they resolved to take as much as each man could carry and proceed on foot. Leaving the horses and the remainder of the provisions with one of their number, the six men, each with a heavy load on his back, boldly set foot on the trackless mountain, and on the second day reached the Donner camp, when the desperate fate of the unfortunates was discovered. No description can give any competent idea of this horrible scene. Some were snow blind, others insane, others dying, others dead; while the wasted forms and ghastly looks of all presented a most shocking sight.

Language cannot describe the features of the living when they saw that relief had actually come. Some became nearly insensible or delirious from excess of joy; others were still as death in the intense strain of another moment's waiting; while many faces were distorted by a crazy, foolish, almost demonic laugh, horrible to behold. They swallowed the small pittance allowed, almost without mastication, and held out their trembling hands for more. Great caution was necessary in order to avoid the ill effects of a giving them too much at a time, but the madness of their hunger soon began to subside.

Fortunately the news spread rapidly over all the then inhabited parts of the state. At San Jose another expedition was fitted out; and, with Mr. Reed at their head, they set off with sufficient food to bring the sufferers in. By the time this new supply arrived their former stock of provisions was exhausted, and now comes the task of getting the sufferers, all weak and emaciated, into some settlement.

Three were left behind to their fate: a Dutchman by the name of Reesburgh, old Mrs. Donner, and a child that Mrs. McCutchins, one of the fourteen who went out, had left behind. The child died the next day; and Mrs. Donner was probably murdered by the Dutchman. She had about her several thousand dollars in specie, and, not being permitted to take it with her, she preferred to stay with it, and with a true miser-feeling, loving her money better than life, she surrendered herself, hugging her purse to the last.

A party of men who afterwards visited the camp, found the old lady with her throat cut, and a bucket near by which had been used to catch her blood. Part of

her body was sliced into steaks to sustain the life of the murderer. Thise Resburgh was afterwards tried for the murder; but on the discovery of gold he came up from the Bay, where he had been sojourning since his acquittal, and opened an eating house at Fort Sutter, which was well known as *Cannibal Tent*.

A touching little incident is related of these times. On the passage from the camp to Fort Sutter, Mr. Brene and one of his little daughters became very faint, and it was feared that they would die. It was proposed to Mr. Reed that they should stop and light fires, and try to restore them. He treated the matter coolly, not to say gruffly, saying he didn't think it worth while to take much trouble about it. On hearing this, his little girl took him by the hand, saying in the sweet earnestness of a grateful child, "Papa, if it hadn't been for Mr. Reed we should all have been dead!" The sight of the sweet pleader brought the lesson home to his heart. He instantly ordered a halt; when they kindled fires on each side of them, administered remedies, and the sufferers were saved.

F. H. MCD.

How to Have a Loving Wife.

If you would have a loving wife, be as gentle in your words after as before marriage; treat her quite as tenderly when a matron as when a miss; don't make her maid-of-all-work, and then ask her why she looks less tidy and neat than when "you first knew her;" don't buy cheap, tough beef, and scold her because it does not come on the table "porter-house;" don't grumble about squalling babies, if you can't make up a "nursery," and you remember that "baby" may take after papa in his disposition; don't smoke and chew tobacco, thus shatter your nerves, spoil your temper, and make your breath a nuisance, and then complain that your wife declines to kiss you. Go home joyous and cheerful to your wife, and tell her the good news you have heard, and not silently put on your hat and go off to the "club" or the "lodge," and afterwards let her learn that you spent the evening at the opera, or at a fancy hall with Mrs. Dash. Love your wife, be patient; remember that you are not perfect, but try to be; let whisky, tobacco and vulgar company alone; spend your evenings with your wife, and live a decent Christian life, and your wife will be loving and true—if you did not marry a thoughtless beauty, without sense or real worth; if you did, who is to blame if you suffer the consequences.—*Phrenological Journal*.

Modern Rules of Good Breeding.

A work entitled "Good Society" says that the corner of a visiting card is turned down to indicate that the caller intends the compliment of her visit to include some other member of the family in the house. A lady should not rise from her seat when a gentleman is brought up and introduced to her, unless he is an elderly man, or, from peculiar circumstances or family connection, the lady wishes to pay him the marked attention of shaking hands at a first interview. When people meet at the house of a common friend, they may converse together without an introduction, if they find themselves in proximity, and an occasion arises for speaking; but, without a special introduction, neither lady should recognize the other if they meet in public the next day.

DANGER OF REVERIE.—Do anything innocent rather than give yourself to reverie. I can speak on this point from experience. At one period of my life I was a dreamer and a castle builder. Visions of the distant future took place of present duty and activity. I spent hours in reverie. I supposed I was seduced in part by physical debility. But the body suffered as much as the mind. I found, too, that the imagination threatened to influence the passions, and that if I meant to be virtuous I must dismiss my musings. The conflict was a hard one; I resolved, prayed, resisted, sought refuge in occupation, and at length triumphed. I beg you to avail yourself of my experience.—*Channing*.

A lady and gentleman of Troy, N. Y., whose connubial bliss is perfect in everything, save the presence of children around the domestic fireside, were examining some illuminated mottoes in a book store, the other day, when the wife picked out one bearing these words: "God bless our home." The husband thought that very good, but still not exactly what they wanted. Looking a little farther, he picked up this one: "Suffer little children to come unto me."

HOUSEHOLD READING.

Dried Beef.

In our last issue we gave a very good receipt for cooking dried beef. We here append some very pertinent remarks upon the use of this very good and convenient article of diet, from the American *Agriculturist*: "The good qualities of dried beef as an article of food for the family, are not fully appreciated. In point of excellence, it is one of the nicest articles, when properly prepared, that we have in our storeroom. It is also one of the most economical articles of food; quite a small quantity of dried beef, shaved very fine, and cooked with a nice gravy, will serve for meat for a family at very small expense. Then it is so convenient to have; always ready; always acceptable. To people who live convenient to market, it is not of so much importance; but to us, who live at a distance from towns, dried beef is one of the necessary articles in our bill of fare. We frequently entertain guests at our table who never have seen dried beef served other than as a relish for bread and butter; shaved and eaten without cooking. There are several methods of cooking it. Some prefer it cooked with a gravy of water, seasoned with butter, thickened with flour, and, perhaps, eggs broken in while cooking. Others cook it with crumbs of sausage, frying the sausage first, then adding the beef with water, and thickening with flour. It is also very good cooked with a little sweet milk and sweet cream, the gravy being thickened with flour; allow it to boil once; that is all the cooking it requires. A dish of dried beef, properly cooked, served with toast, baked potatoes, and boiled eggs, is a very nice provision for breakfast or a dinner prepared in haste. When too salt, it can be remedied by soaking, after cutting and before, and cooking, and adding a little white sugar while cooking, to restore the sweetness lost by soaking. Sugar-cured beef is much nicer than that cured with salt alone. I put mine into a sweet brine, such as is used for pork hams."

SOMETHING ABOUT SOUPS.—It is the general impression that a soup which, when cold, sets into a strong jelly must be the most nutritious; but such is not the fact. The soup "sets" because it contains the gelatine or glue of the sinews, flesh and bones; but on this imagined richness alone, it has, by recent experiments, been proved that no animal can live. The jelly of bones boiled into soup can furnish only jelly for our bones; the jelly of sinews or calf's feet can form only sinew; neither flesh nor its juices set into a jelly.

It is only by long boiling we obtain a soup that sets, but in a much less time we get all the nourishing properties that meat yields in soups that are no doubt useful in cases of recovery from illness, when the portions of the system in which it occurs have been wasted; but in other cases, though easily enough digested, jelly is unwholesome, for it loads the blood with not only useless but disturbing products. Nor does jelly stand alone in that particular. Neither can we live on meat which has been cleared of fat, long boiled, and has all the juice pressed out of it; a dog, so fed, lost in forty-three days a fourth of his weight; in fifty-five days he bore all the appearance of starvation, and yet such meat has all the muscular fiber in it.

HOW TO ACT IN CASE OF POISON.—Whatever is done must be done quickly. The instant a person is known to have swallowed poison by design or accident, give water to drink, cold or warm, as fast as possible, a gallon or more at a time, and as fast as vomited drink more; tepid water is best, as it opens the pores of the skin and promotes vomiting, and thus gives the speediest cure to the poisonous article. If pains begin to be felt in the bowels, it shows that part at least of the poison has passed downwards; then large and repeated injections of tepid water should be given, the object in both cases being to dilute the poison as quickly and as largely as possible. Do not wait for warm water—take that which is nearest at hand, cold or warm, for every second of time saved is of immense importance; at the same time send instantly for a physician, and as soon as he comes turn the ease into his hands, telling him what you have done. This simple fact cannot be too widely published; it is not meant to say that drinking a gallon or two of simple water will cure every case of poisoning; but it will cure many, and benefits all by its rapidly-diluting quality. —*Journal of Health.*

About Biliousness.

Biliousness is a common malady. A great many people are bilious. They have no dyspepsia, they never had a symptom of dyspepsia in their life; they are only bilious. Now this word biliousness is a sort of respectable cover for piggishness. People are not bilious when they eat as they should.

Reader, are you bilious? [Rather a hard question after the above hard word.] Let me prescribe for you. If you follow my prescription, and don't get well, write me, and in the next edition I will announce my error.

First, on getting up and going to bed drink plenty of cold water. Eat for the morning meal, until the bilious attack passes, a little stale bread, say one slice, and a piece as large as your hand of boiled beef or mutton. If the weather is warm, take instead a little cracked wheat or oatmeal porridge. For dinner take about or near the same thing. Go without your supper. Exercise freely in the open air, producing perspiration, once or twice a day. In a few days your biliousness is all gone. This result will come, even though the biliousness is of the spring sort, and one with which you have from year to year, been much afflicted.

Herb dishes, bitter drinks, lager beer, ale, whisky, and a dozen other spring medicines are simply barbarous.—*Ex.*

MEDICAL QUALITIES OF PUMPKINS.—A prominent physician of New York City, speaking of the properties of pumpkins, says that in his travels in Syria he found pumpkin seeds almost universally eaten by the people for their supposed medical qualities. Not because they are diuretic; but as an antidote against animalcules, which infest the bowels.—They are sold in the streets as apples and nuts are here.

It is said to be a medical fact that persons have been cured of tape-worm by the use of pumpkin-seeds. The outer skin being removed, the seeds are bruised in a mortar into an oily, pasty mass. It is swallowed by the patient after fasting some hours, and it takes the place of chyle in the stomach, and the tape-worm lets go its hold on the membrane and becomes gorged with this substance, and, in some measure, probably torpid. Then a large dose of castor oil is administered, and the worms are unable to renew their hold.

WHAT CLOVES ARE.—Cloves are the unopened flowers of a small evergreen tree that resembles in appearance the laurel or the bay. It is a native of the Molucca or Spice Islands, but has been carried to all the warmer parts of the world, and is now cultivated in the tropical parts of America. The flowers are small in size, and grow in large numbers, in clusters, to the very ends of the branches. The cloves we use are flowers gathered before they are opened and while they are green. After being gathered, they are smoked by a wood fire, and then dried in the sun. Each clove consists of two parts, a round head, which is the four petals or leaves of the flower rolled up, enclosing a number of small stalks, or filaments; the other part of the clove is terminated with four points, and is in fact, the flower cup and the mripe seed vessel. All these parts may be distinctly seen if a few cloves are wet for a short time in hot water, when the leaves of the flower soften, and readily unroll. Both the taste and smell of cloves depend on the quantity of oil they contain. Sometimes the oil is separated from the cloves before they are sold, and the odor and taste in consequence much weakened by such unfair proceedings.

PURE AIR in all buildings is of primary importance, whether it be a family dwelling, or the abode of those animals in the healthfulness, and consequent usefulness, of which the owner has so deep an interest. Success, in any pursuit, depends very much upon the amount of intelligence which is employed in its prosecution.

Foul air is probably, directly or indirectly, the cause of nine-tenths of the diseases of the land, especially of fevers. Diphtheria, typhoid and scarlet fever and many other most serious illnesses have their origin in cellars, both in city and country; and we can do our readers no greater service than to urge them to see that, at all times, they are in a dry, sweet, wholesome condition: Even foul air enough to seriously taint a whole house rises from the drains of stationary wash-stands left open over night.

PEANUT OIL FOR BUTTER.—Peanut oil, used in the South during the war, as a substitute for butter, is again coming into use in view of the high price of the latter.

Household Receipts.

MUFFIN PUDDING—SOMETHING NICE.—For a muffin pudding, cut six stale muffins in very thin slices, lay them in a deep dish, pour over them half a pint of brandy, in which you will let them soak. Simmer half a pint of cream with a stick of cinnamon, the grated peel of a large lemon, and four ounces of lump sugar. Let it remain simmering over the fire for ten minutes, then take off and keep stirring until cold, then mix it by degrees with the yolks of eight eggs, well beaten, butter a plain mold and line it with muslin, the crusty side being outwards. Fill up the mold with alternate layers of dried cherries or other fruit, and the crumbs of the muffin. Flavor the custard with orange-flower water, and pour it into the mold. Keep the mould upright, by sitting it in bran until the custard has soaked in. Then bake it half an hour.

TO SOFTEN KID BOOTS.—Melt a quarter of a pound of tallow, then pour it into a jar, and add to it the same weight of vegetable oil, stir and let it stand till cold; apply a small quantity, occasionally, with a piece of flannel. This will soften and will not injure the kid.

TO CURE DYSPESIA.—Take raw clams and broth or, the uncooked broth alone, from a gill to a half pint, on an empty stomach, before breakfast, for a month, if necessary, or even longer. This is in reply to Sarah's inquiry, and in my case, I have found it of great benefit.—*August Cor, Rural New Yorker.*

APPLE FRITTERS.—Pare and core some large apples, cut them into round slices. Soak them in wine, sugar and nutmeg for two or three hours. Make a batter of four eggs, a tablespoonful of milk; thicken with enough flour, stirred in by degrees, to make a batter; mix it two or three hours before it is wanted, that it may be light. Heat some butter in a frying pan; dip each slice of apple separately in a batter, and fry them brown; sift powdered sugar and grate nutmeg over them.

PRICASED CHICKEN.—Cut up chicken, and boil with slice or two of pork in sufficient water to cover till quite tender. Fry some pork and when cooked a little, drain the chicken and fry with the pork till quite brown. Then take out, and pour the broth into the frying pan, with the pork fat, and make a gravy with browned flour, season well with butter, put the chicken into the gravy; be sure and have the fat quite hot when the chicken is put in, so it will brown readily.

Mechanical Hints.

RURAL PICTURE FRAMES.—Rustic wood for this and other purposes is in great favor nowadays. With a little care in selection of material, and skill in bandling tools, we may frame our engravings and paintings at slight cost. Oak wood, denuded of the bark, presents a beautifully corrugated surface, out of which the knife easily removes the few fibres which adhere, and it is ready for varnishing as soon as it is seasoned. The "season cracks," should they occur, may be filled with dark-brown putty, and will even lighten the general effect.

Take a thin board, of the right size and shape, for the foundation of "mat," saw out the inner oval or rectangular form to suit the picture. Nail on the edge a rustic frame made of the branches of hard seasoned wood, and garnish the corners with some pretty device, such, for instance, as a cluster of acorns. Ivy may be trained to grow around these frames with beautiful effect.—*Scientific American.*

BRONZING FOR LEATHER.—Dissolve a small amount of so-called insoluble aniline violet in water, and brush the solution over the article to be bronzed; it will dry quickly and may have to be repeated. Shoes treated in this manner have a beautifully bronzed appearance.

ELASTIC AND SWEET STAREH.—Good common glue is dissolved in water, on the water bath, and the water evaporated down to a mass of thick consistence, to which a quantity of glycerine, equal in weight to the glue, is added, after which the heating is continued until all the water has been driven off, when the mass is poured out into molds, or on a marble slab. This mixture answers for stamps, printers' rollers, galvano-plastic copies, etc. The sweet glue, for ready use by moistening with the tongue, is made in the same way, substituting, however, the same quantity of powdered sugar for the glycerine.

VARNISH FOR OIL PAINTINGS.—Take dextrine 2 parts, alcohol 1 part and water 6 parts.

Life Thoughts.

THERE comes a time when one sweet child-face is more to us than all the world beside.

He is our friend who helps us to one new thought or who inspires us to one noble action.

The soul without passion is like mripe fruit; not until the sunshine of a real love touches it, does it develop sweetness and perfection.

The best sometimes err, but still remain the best; while the worst is well at times, yet still remain the worst.

A BEAUTIFUL THOUGHT was that in the mind of a little girl, who, on beholding a faded rose, round which three little buds were unfolded, exclaimed to her brother: "See, Willie, these little buds have awakened in time to kiss their mother before she dies."

HOW TO SECURE PLEASANT DREAMS.—A French writer has said that to dream gloriously, you must act gloriously when awake; and to bring angels down to hold converse with you in your sleep, you must labor in the cause of virtue during the day.

HOW TO DESTROY ENEMIES.—"Why do you show favor to your enemies instead of destroying them?" said a chieftain to the Emperor Sigismund. "Do I not destroy my enemies by making them my friends?" was the Emperor's noble reply. Kindness is the best weapon with which to beat an adversary.

Testing a Man.

No man is a man till he is tried; till he has passed through the ordeal; through deep water and scorching fires. A man surrounded with comforts, friends and relations, food and raiment; whose barns are filled with plenty, and whose presses gush out with new wines; who eats his fill; sits and reads, doles about, taking his ease and pleasure; smoking his pipe and chewing his cud; is he a man? Far from it. A man is not a man until he is proved—has passed the ordeal—drank the bitter cup; risen above life's conflicts; mounted the hillows of the wave.

Was Joseph a man in deed, till he was cast into the pit; torn away from the bewitching tempter, leaving his garments behind; till he groaned in the prison house? Was Moses a man till he had passed the fiery ordeal? Was Paul truly a man till he suffered perils by sea and land, and finally received forty stripes save one.

Let a man be forsaken of all, as was Job—then if he comes out, rising triumphantly over all obstacles, he is a man.

LIVING TO ONE'S SELF.—The cure of a little village near Bellizona, to whom a traveler expressed wonder that the peasants allowed the Ticini to flood their fields, replied that they would not join to build an effectual embankment, high up the valley, because everybody said, "that would help his neighbors as much as himself." So every proprietor built a bit of low embankment about his own field, and the Ticini, as soon as it had a mind, swept away and swallowed up all together.

LEISURE HOURS.—It was a beautiful observation of the late William Hazlitt, that "There is room enough in human life to crowd almost every art and science into it. If we pass no day without the company of books—we may with ease fill libraries or empty them of their contents. The more we do, the more we can do; the more busy we are, the more leisure we have."

INDUSTRY.—It is no man's business whether he has genius or not; work he must, whatever be is, but quietly and steadily; and the natural and unforced results of such work will be always the thing God meant him to do, and will be his best. No agonies or heart rendings will enable him to do any better. If he is a great man, they will be great things; but always, if thus peaceably done, good and right.—*Ruskin.*

DON'T BE LIKE A LOBSTER.—It is said that when the waves carry a lobster up into the rocks and leaves him there, high and dry, there he remains perfectly inactive, waiting for the waves to come and wash him off again. And should the waves fail to reach him he miserably dies, when by a little exertion of his own he could have reached the water which was lying only a few feet from him. So it is with some men. When the waves of fortune leave them high and dry on the rocks of adversity, they wait to be borne off again without making any effort of their own. Young man, don't be like a silly lobster.

Venezuela Mines.

[The following communication from Capt. Dahlgren has been received, with the promise of a series of articles on mining processes and customs in Mexico. Capt D. is well known in many parts of our country.—ED.]

EDITORS PRESS:—I forward you a copy of a letter from an old friend of mine which will explain itself. Mr. W. is well known in Montana and Eastern Nevada. He is English by birth, but American by adoption;—a machinist by trade, and an honest and industrious man and excellent mechanic. He is 50 years of age, and went to the country to put up the engine and boiler of a quartz mill and to run it. He has been engaged in such work for seven or eight years past.

CARATAL, NUEVA PROVINCIA,
VENEZUELA, July 10, 1870.

FRIEND DAHLGREN:—There are only two districts formed as yet—Callao and Panama—with plenty of room for more discoveries. The lodes run northeast and southwest. They are, in fact, a vast network of lodes. Sink where you will, there is gold—not in pockets, but in true quartz veins. It pays from the start. The quartz is not contaminated with any base metal of any kind, which requires chemical processes and hell-roaring machinery to save the gold. It averages from \$35 to \$70 per ton, and is readily crushed and saved. The country is very unhealthy on account of fevers and liver complaint. Few whites escape. The country is mountainous and deeply wooded; in fact, impenetrable without cutting a road inch by inch. We are now passing through the wet season. It rains every afternoon in torrents, and the rivers and gulches are impassable. * * * * The American mill (20 stamps) is running, and ships \$26,000 monthly. They are adding 20 more stamps (a Chicago mill from Eagle works). Our heavy pieces cannot cross yet, but all the light pieces are stored in our mill, which is up and enclosed. The mill is a 12-stamp Howland Rotary Battery from Morey & Sperry's, of New York. Were we running, we would be turning out the "hars," sure. We have six months' ore out and hauled, and in every portion of the quartz gold is visible to the eye or with the glass. Our success is sure. This is no myth; no humbug. I tell you facts. You would be astonished to see it. All that is wanted are the mills. The ore is here, sure. Plenty of fuel, water, cheap labor and grub. Leave Nevada and come here with a mill—the bigger the better. You would make a fortune, sure.

Your old friend,

JOHN S. WILLIAMS.

These are the plain facts—plenty of fine gold quartz and fevers or liver complaint. It is 150 miles back from the Orinoco River, and the port of entry is Bolivar, on that river. It is reached by steamer to San Thomas from New York in 12 days or so. There will be a stampede there, surely, one half of whom will die, and the other half suffer the rest of their lives. Three Howland Rotary Batteries have gone now, of 12 stamps each; and engineers and superintendents are in demand.

C. B. DAHLGREN.

SAN DIEGO, DURANGO, Mexico,
November 23, 1870.



Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

L. P. McCarty, travelling and corresponding agent for the Press, is now in town, and has succeeded in securing a large addition to its subscription lists in Nevada and Placer counties.

SCIENTIFIC PRESS. We are pleased to learn that the circulation of this valuable journal is rapidly increasing in all the States and territories. The efforts of the proprietors, Messrs. Dewey & Co., to furnish a reliable paper for the miner, farmer, mechanic and inventor, are successful, and their paper has obtained an enviable reputation for ability, and truthfulness.

Complete Volumes—Bound or unbound—of the SCIENTIFIC PRESS from Jan. 1, 1864, to date, can be had at reasonable rates at this office. They contain much valuable information.

PACIFIC RURAL PRESS.

SUBSCRIBE! GET UP CLUBS!

Farmers, Horticulturists, Sericulturists, Stockmen, News dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.

Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO.

Publishers, Patent Agents, and Engineers,
414 Clay Street, S. F.

JOS. THORNHILL,
BRICKLAYER and CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Bells, Fountains, Ornaments, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street. JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

Cash Capital, \$300,000

OLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 27th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 13th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Sec'y. Jan7 Office, 37 New Merchants Exchange.

Continental Silver Mining Company—Location of Works, near Hamilton, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company held on the 31st day of December 1870, an assessment of (\$1) one dollar per share was levied upon the capital stock of said Company, payable immediately to the Secretary, at the office of the Company, 302 Montgomery Street, San Francisco Cal., in gold coin of the United States.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday the 22nd day of February, to pay the delinquent assessment, together with costs of advertising, and expense of sale. By order of the Board of Trustees. H. H. BLAKE, Secretary. Office 302 Montgomery Street, San Francisco Cal. Jan7

El Refugio Petroleum Company.—Location Santa Cruz County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company held on the 18th day of January 1871, an assessment of sixty five (65) cents per share was levied upon the capital stock of said Company payable immediately in United States gold coin, to the Secretary R. Wegener, No. 414 California Street San Francisco California.

Any stock upon which said assessment shall remain unpaid on the 31st day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday the 14th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. WEGENER, Secretary. Jan7 Office, 414 California Street, San Francisco, Cal.

Jennie A. Consolidated Mining Company, White Pine County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 31st day of December 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 27th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Sec'y. Office, Room 37 New Merchants Exchange, San Francisco, California. Jan7

I. X. L. Gold & Silver Mining Company, Location of Works Silver Mountain Mining District Alpine County, California.

NOTICE.—There are delinquent upon the following described stock on account of assessment levied on the 18th day of Oct. 1870, the several amounts set opposite the names of the respective share-holders, as follows:—

Names.	No. Certificates	No. Shares.	Amount.
Gomer Evans.....	335	90	\$90 00
G W Cuddback.....	318	2	0 00
Donald Davidson.....	328	17 1/2	17 50
Arch Carmichael.....	142	5	5 00
Arch Carmichael.....	142	10	10 00
A Wagner.....	388	2 1/2	2 50
Christian Helms.....	387	2 1/2	2 50
Louis Blanding.....	237	28	28 00
Henry Eno.....	301	3	3 00
Henry Eno.....	327	7 1/2	7 50
Henry Eno.....	394	19	19 00
E F Gibson.....	270	12	12 00
Walter J Gardiner.....	338	20	20 00
Walter J Gardiner.....	339	20	20 00
Walter J Gardiner.....	400	20	20 00
Walter J Gardiner.....	401	10	10 00
John Bolt.....	381	10	10 00
D C Riddell.....	258	5	5 00
R K Love.....	129	12	12 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of February 1871, said shares of each parcel of said Stock as may be necessary will be sold at public auction by Olney & Co., Auctioneers, 502 Montgomery Street, San Francisco, California, on Tuesday the 31st day of Jan. 1871 at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale. J. CROWNSHIELD, Secretary. Office, Pioneer Hall (upstairs) 808 Montgomery Street, San Francisco, California. Jan4-3t

Kincaid Flat Mining Company, Tuolumne County, California.

NOTICE is hereby given that at a meeting of the Board of Trustees of said Company, held on the 13th day of January 1871, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 16th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Sec'y. Jan4 Office, 220 Clay St., San Francisco.

Nevada Land and Mining Company—Location of Works, Stepto, Johnson & Latham Antelope and Clifton District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 10th day of January, 1871, an assessment of two and one half (2 1/2) cents per share was levied upon the Capital Stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery Street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 20th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office: Room 5, No. 302, Montgomery Street, San Francisco, California.

Noonday Silver Mining Company.—Location of Works—White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 19th day of January, A.D. 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, No. 419, California Street, San Francisco, California.

Any stock upon which assessment shall remain unpaid on the 23rd day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 17th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. C. E. ELLIOTT, Secretary. Office, Room 21, Hayward's Building, 419, California Street, San Francisco, California.

Ophir Copper, Silver and Gold Mining Company—Location of Works, Ophir Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the Thirtieth day of December A. D. 1870, an assessment of forty cents per share was levied upon the capital stock of said Company payable immediately, in United States gold coin to the Secretary, at the Company's office, No. 314 California St., San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 27th day of Feb. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. BRUSH, Secretary. Jan7 Office No. 314 California Street.

Placer Gold Mining and Canal Company—Location of Works, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of January 1871, an assessment of \$6.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at his office 24 Post Street, San Francisco Cal.

Any stock upon which said assessment shall remain unpaid on Wednesday the fifteenth day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 11th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. C. S. HALEY, Secretary. Jan7 Office, 24 Post St., San Francisco, Cal.

St. Patrick Gold Mining Company—Location of works, Ophir District, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December, 1870, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company No. 402 Montgomery Street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary. Jan7 Office, No. 402 Montgomery St., San Francisco.

Eastern Advertisements.

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan Street. 24v19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 State venson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home-paths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 16v20-y

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Advertisements.

Chicago Advertisements.



Over 300 Actual Fires put out with it. More than \$4,000,000 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "His Lord." F. W. FARWELL, Sec'y. 3v22-3ms 122 Washington St., Chicago.



LEONARD'S

Patent Vapor Jet Burner and Hand Lamps.

Also, Portable Gas Burners and FIXTURES.

County and State Rights for sale.

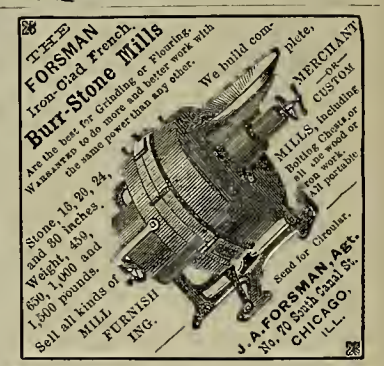
Send for Circulars.

Manufactured and for sale by

D. LEONARD & CO.,

109 Calhoun Place, Chicago, Illinois.

3v22-3ms



Send for Circular. 3v22-3ms

Established 1843.

LOUIS ESPENSCHIED,

WAGON MANUFACTORY,

No. 1815 Broadway, St. Louis, Missouri.

3v22-6ma

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS and DEALERS IN

China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

THE EYE! THE EAR!
DR. D. E. DUDLEY,
Surgeon, Oculist and Aurist,
Has removed to his new rooms, 24 Post street between Montgomery and Kearney. 3v22-3ms

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

EVERETT HOUSE, Cor. Clark & Van Buren Streets, CHICAGO.

This Hotel is centrally located.

Only Three Minutes walk from the

Court House, Post Office, and various places of amusement.

The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,

are within one block. The house is SEATLY AND ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the Accommodations Equal to any in the City, with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors.
2422-42nd

AGENTS WANTED.

A Magnificent Volume!

INTERESTING! NEW! RELIABLE!

Historical and adventure. History, Fact and Humor.
CUBA WITH PEN AND PENCIL.
About 600 octavo pages, 20 beautiful Cuts! 313 Illustrations in all, engraved expressly for this work, in the best style, embracing every variety of subject and presenting

A Complete Panorama of the Island.

Many humorous illustrations are introduced to correspond with the many witty and laughable scenes, incidents, descriptions &c., with which the volume abounds. New style elegant binding. Any one desiring to act as agent, will please apply at once for a circular containing table of contents, and sample of illustrations.

Address, F. DEWING & CO.,
2422-42nd, 542 California St., San Francisco.

THE BEST PAPER

—AND THE—

BEST INDUCEMENTS!

This Quarter's 13 numbers SENT FREE to all subscribing before Dec. 25, 1870, for next year's

MOORE'S RURAL NEW-YORKER,

THE GREAT ILLUSTRATED

Rural and Family Weekly.

This is not only the Largest, Best and Cheapest, but by far the Largest-Circulating Journal of its Class! National in Character, Ably Edited, Superbly Illustrated and Printed, it is the

BEST AMERICAN WEEKLY!

It is the standard authority on all branches of Agriculture, Horticulture &c. As a Literary and Family paper it is a favorite from Canada to California. Indeed Moore's Rural has no rival in its sphere, and is the largest illustrated Journal on the continent—each number containing sixteen five-column pages, (double the size of most papers of its class).

A NEW FEATURE.

Among recent accessions to the Rural's unequalled Editorial staff is that of Hon. T. HART HYATT, of Cal., as editor of the Pacific Coast Department—a new and valuable feature. By prompt mailing and rapid railroad transit, the Rural now reaches the Pacific slope about the time of its date.

TERMS, INDUCEMENTS, ETC.

TERMS—\$3 a year of 52 Numbers, and only \$2.50 in clubs of ten. This Quarter's 13 numbers sent FREE, as offered above. Our club inducements for 1871 are unprecedented. Specimens, Premium Lists, &c., sent free to all forming clubs,—and we want a live Club Agent in every town. Address

D. D. T. MOORE,
41 Park Row, New York.

Notice.

To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 31, 317, 319 and 321

PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

\$5.60 in Gold.—A Present

Of the splendid Steel Engraving Evangeline (Price \$5.60 in gold) to subscribers for the ILLUSTRATED EXCELSIOR MAGAZINE. The illustrations ALONE are worth many times its cost, and the magazine reduced from \$2.50 to \$1.00 a year, is now one of the CHEAPEST in the world. Contains BEAUTIFUL SCENES, SCENIC PICTURES, INTERESTING PUZZLES AND REBUSES, CUTS OF LADIES' PATTERNS, NEWS, &c., &c. We will send the Magazine one year, also this splendid Steel Engraving on receipt of the regular subscription price, \$1.00 and 8 cents for postage. Sample copies FREE. Address the Publisher, C. L. VAN ALLEN, 171 Broadway, New York. 2v1-tinep&ks

Connecticut Mutual Life

INSURANCE COMPANY,

OF HARTFORD, CONN.

Incorporated 1816.

ASSETS, - - - - - OVER \$30,000,000.

Surplus over \$8,000,000,

INCOME FOR 1869, - - - - - \$8,978,751 25

Appropriated for Dividends payable in 1870, \$2,300,000.

Total Claims by Death paid to date, over \$9,560,000. Total Dividends Paid to Date, over \$6,700,000.

Ratio of Expense to Total Income 8.89, Only.

A Purely Mutual Company.

All its surplus is equitably divided among the Policy-Holders in

ANNUAL DIVIDENDS,

Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making

ALL POLICIES NON-FORFEITING.

OFFICERS:

JAMES GOODWIN, President. ZEPHANIAH PRESTON, Vice-President.
EDWIN W. BRYANT, Actuary. WOODBRIDGE S. OLMSTEAD, Secretary.
LUCIAN S. WILCOX, M. D., Medical Examiner.

General Agent for the Pacific Coast.

JAMES B. ROBERTS, 315, California Street, San Francisco, Cal.

THOS. H. SELBY & CO.

Nos. 116 and 118 California Street, San Francisco.

SHOT TOWER

AND

MANUFACTORY

OF

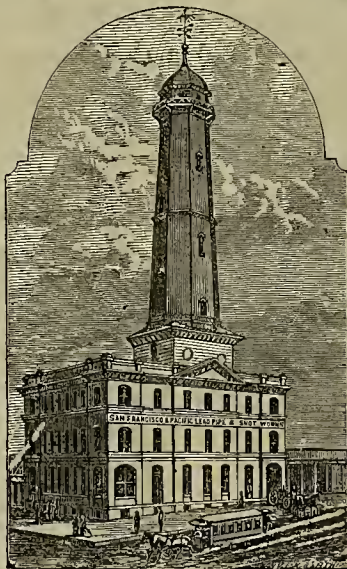
PLUMBING GOODS

OF ALL KINDS,

CORNER

HOWDAR AND

FIRST STREETS.



IMPORTERS OF

BAR & PLATE IRON, CAST STEEL, SHEET COPPER, ZINC,

AND ALL KINDS OF

Plumbing Goods, and manufacturers of Lead Pipe,

SHEET, LEAD, DROP SHOT, &c.

ALSO PROPRIETORS

Of the Selby Lead and Silver Smelting Works, of San Francisco

Crude Lead and Silver Bars Purchased.

SPECIAL NOTICE.

THE "SELBY LEAD AND SILVER SMELTING AND REFINING COMPANY" having made large additions to their Works, are prepared to receive in any quantity, Lead Bullion containing Silver and Gold. Returns in all cases, will be made promptly in twenty days from the receipt of the bullion in San Francisco.

Returns from Galena ores containing Silver will be made within thirty days from delivery in San Francisco. These ores should be concentrated so as to assay fifty per cent. in Lead.

They are also increasing their Works for the reduction of rich Silver ores. This addition will be completed about the 15th of September.

Freight and shipping charges advanced on shipments to these Works, provided the amount does not exceed the net value of the shipment.

THOS. H. SELBY & CO.

Nos. 116 & 118 California Street.

9v21-1am3m

Business Cards.

A NEW PATENT.

If you want a superior set of TEXTS on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN, NOTARY PUBLIC.

COMMISSIONED FOR
Nevada, N. Y. York, Etc.
No. 612 MARCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.



Farmers and Mechanics BANK OF SAVINGS, No. 235 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
OEO. M. CONDEE Cashier. 19v16-3m

THEODORE KALLENBERG, Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. 17 No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Oarratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
15v12-14f SAN FRANCISCO.

THE GIANT POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,

No. 210 Front Street, San Francisco. 25v19

THOMPSON BROTHERS, EUREKA FOUNDRY, and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

SAN FRANCISCO CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

L. SCHUMANN, PIONEER Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

J. F. PAGES, SEAL ENGRAVER, AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

PATENTS

Bought and Sold
ON
COMMISSION.

The Latest and Most Valuable Inventions can always be found at the office of

WIESTER & CO.,

Patent Brokers,
17 New Montgomery Street, San Francisco.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-47

THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
2iv17-nyUNION IRON WORKS,
Sacramento.

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Donbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14v1 SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO

EUREKA FILE WORKS.

311

Bet. Fremont and
Beale,

MISSION ST., SAN FRANCISCO.

T. G. DURNING, Superintendent.

New Files of every description made to order. Files re-cut and warranted equal to new. Reaper and Mower sections, bars, etc., made to order at short notice. Orders from the country promptly attended to. 22v22f

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 15th, one of the safes, containing Miller & Haley's books and papers, stood the test perfectly,—to whom all interested are referred. This safe is built at the

CALIFORNIA TOOL WORKS,

143 Beale Street, bet. Mission and Howard. All kinds of Edge and other Tools made to order. Agricultural machinery repaired. Job grinding and polishing by steam. All work warranted. Orders promptly attended to. 22v23-3m J. WEICHBART, Proprietor.

McAFEE, SPIERS & CO.,

BOILER MAKERS

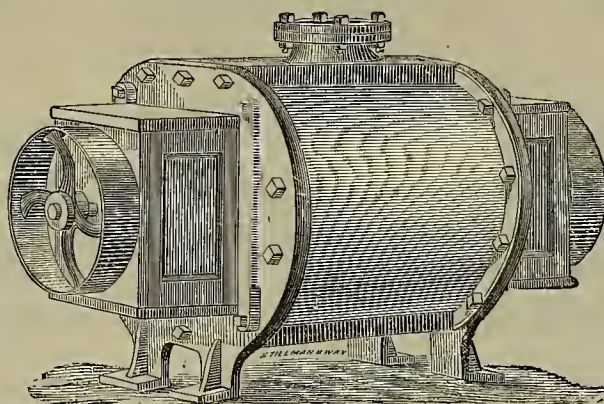
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.
2v21-1f

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864, July
24, 1866; and Oct. 9, 1866.

ADAPTED

FOR
Smelting,

Foundry,

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Zetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

4v16-3m

THE

CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

DOUBLE PLUNGER STEAM PUMPS,

FOR DRAINING MINES.

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

N. P. Langland,
STAIR BUILDER,485 and 487 Brannan street,
SAN FRANCISCO.

16v16-1y

Rails, Newel Posts,

AND BALUSTERS,
Constantly on hand for sale, and
shipped, together with
all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit
by simply sending a correct ground plan of stairs, together with height of story.Wood-Turning and Scroll Sawing of all kinds promptly executed.
Spanish Cedar, Walnut and California Laurel always on hand

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMEE

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 8v19-ny

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levits, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burts Solar Compass, 14v21-2m

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20gFROM THE WEEK
Sewing Machine
\$65
The WHOLE WORLD
being judges—they
are the BEST! Why?
Because the WEEK
Machines TO
work and
run
faster and with more
VARIETY. Buy the
LATEST! Call
and see S. E. Hoar, 329
Kearny St. S. F., Ast.GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAPPE'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.13 and 15 Fremont street near Market, San Francisco.
10v14r

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Connec-
tions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED, V. KINGWELL.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE
MILLS, it being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.Pain is supposed to be the lot of us poor mortals, as
inevitable as death itself and liable at any time to come
upon us. Therefore it is important that remedial
agents should be at hand to be used as an emergency,
when the seminal principle lodged in the system shall
develop itself, and we feel excruciating agonies of pain
or the depressing influence of disease. Such a reme-
dial agent exists in the PAIN KILLER, whose fame has
made the circuit of the globe. Amid the eternal ices of
the polar regions or beneath the intolerable and burning
sun of the tropics, its virtues are known and appreciated.
Under all latitudes, from the one extreme to the other,
suffering humanity has found relief from many of its
ills by its use. The wide and broad area over which
this medicine has spread, attests its value and potency.
From a small beginning, the Pain Killer has pushed
gradually along, making its own highway, solely by its
virtues.Such unexampled success and popularity has brought
others into the field, who have attempted, under simi-
larity of name, to usurp the confidence of the people and
turn it to their own selfishness and dishonesty, but their
efforts have proved fruitless, while the Pain Killer is
still growing in public favor.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.

CHAS. WEST,
No. 139, 3d Street, S. F.

NEVADA METALLURGICAL WORKS,

19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHARDT.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.

26v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery. Manager,
H. H. LAWRENCE. Assayer,
J. A. MAHS.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.

11v21-3m.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,
ADVANCES MADE

On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

HENRY G. HANKS,

Assayer and Chemist,
AND DEALER IN
Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide.
Apply to
J. BLAKOME,
20v21-3m N. E. cor. California & Sansome streets.

Baltimore Copper Company.

Highest Price paid for Copper, Ore, 15 pr. ct.
Regulas, and Bars.

DANIEL MEYER, 210 Pine Street,

21v21-3m SAN FRANCISCO.

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

GEO. W. SMILEY,
24v21-3m 424 Montgomery st., San Francisco.

MILLER & HALEY'S MILLS,

BERRY STREET,
Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.

19v21-3m MILLER & HALEY,

R. H. McDONALD & CO.,

WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3m S. W. Cor. Market and First streets.

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,

No. 415 CALIFORNIA STREET.
25v20-4y



FOR SALE BY THE

HARDWARE TRADE.

YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.

FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS,

POST OFFICE LOCK-BOXES,

CAST BRASS FRONTS, GLASS DOORS,

PRISON LOOKS,

UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.

OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of

GENERAL HARDWARE,

Table and Pocket Cutlery, Eng. and Am. Files Saws &c.

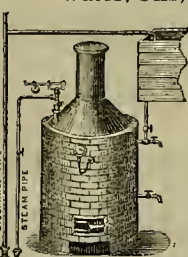
VARNISHES AND JAPANS.

N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

Machinery.

STEAM JET PUMP.

Blakelock & Williams' Patent, for
Water, Oils, Acids, Etc.



The best COLD WATER
pump for filling tanks for
stationary or portable
Steam Engines. Also highly
recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARGTON, Stockton. 21v21-4f

Blake's Patent. THE BEST PUMP for Boiler



San Francisco Agents, 112 & 114 California St.,

SEVERANCE HOLT & CO.,

MANUFACTURERS OF
Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Special
attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

The Risdon Iron and Locomotive Works.

WATER PIPES,

—FOR—

Cities or Mining Purposes,

CAN BE HAD AT THE

RISDON IRON AND LOCOMOTIVE WORKS,

San Francisco.

They have just completed 70,000 feet of 30 inch pipe,
maximum pressure 375 feet, 12,500 feet, 900 feet head;
9000 feet 225 feet head. and 5000 feet of 22 inch pipe 300
feet head.

THE MACHINERY

—FOR—

Shearing, Punching, and Riveting,

—HAS BEEN—

Expressly Designed

for working Iron for pipes, and enables such work to be

Done Cheaper and Better,

than with ordinary machinery.

The Risdon Iron and Locomotive Works,

Are prepared to contract to make and lay pipe of any
dimensions, and over depressions of any depth,

GUARANTEEING THE SAME.

The Risdon Iron and Locomotive Works,

Also do all kinds of

Iron Foundry Work, Steam Engines,

Quartz Mills and Mining Machinery.

LOCATION OF WORKS,

S. E. Corner Beale and Howard Streets.

1v22-4c1m



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,

costing no more and wearing one half longer than any
shoe before introduced.

Bolthoff's Steam Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine
for dry crushing in use, doing easily, the work of ten
stamps with one quarter the power.

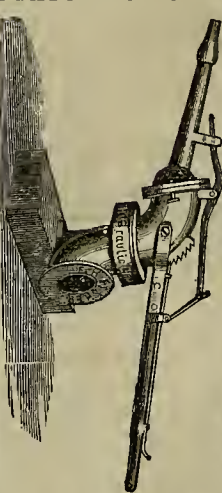
Stamp Mills with all late
Improvements.

Send for prices and information. Address

C. F. HENDRIE, Pres't, R. J. CORY, Sec'y & Treas.

1v22-3m 4cs Council Bluffs Iowa.

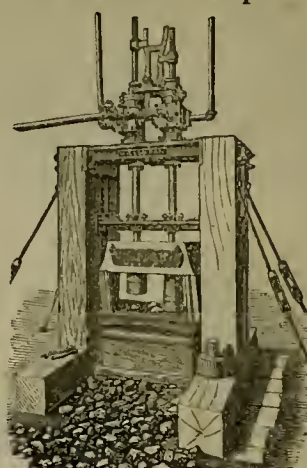
HYDRAULIC CHIEF.



Fisher's Knuckle Joint and Nozzle is the best Hydraulic
Machine in use. Machines manufactured to order to throw from one
to a seven inch stream. HYDRAULIC MINERS TAKE NOTICE. The notice
published by R. H. S. & Co. is a fraud, that they have suits pending in the
United States District Court which involves the working principle of
my HYDRAULIC CHIEF. I have a caution all miners to beware of
the efforts of the said frauds to intimidate my patrons or extort money
from them by false representations. I have full patent for my Hy-
draulic Chief, granted Dec. 20th, 1870. No. of Patent, 100,922.

2v22-1ms F. H. FISHER, Nevada City.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the
East, is now offered to the miners of the Pacific Coast.
Having been in operation now for about two and a
half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill
that has had the severe ordeal of practical working, and
proved itself eminently successful. It is now in opera-
tion in several of the Eastern States and Territories, and
gaining an enviable popularity. The whole machine is
so simple as to be readily understood by the most ordi-
nary minds. In fact, its simplicity is its durability.
The expense of crushing rock or cement with this Mill
is less than one-half the expense of any other Stamp
Mill, and less than one-half the cost. For further particu-
lars inquire of

FURMAN R. WILSON,
San Francisco.

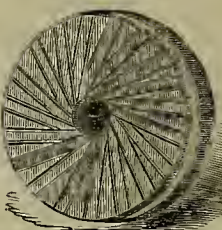
Or of THE WILSON STEAM STAMP MILL CO., 326
Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to man-
ufacture or use any Steam Stamp Mills that are an in-
fringement on the Wilson Patents, as they will be
prosecuted to the utmost rigor of the law.

F. R. WILSON,
2v22-1y Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR



Dufour & Co's.,

Celebrated Dutch
Anchor brand Bolt-
ing Cloth; Snail
Machines; Bra-
n Dusters; Mill Picks;
Mill Picks dressed;
Millstones repaired
rebuilt and bal-
anced.

MANUFACTURERS OF
French Burr Mill
Stones, Portable
Mills of all sizes,
from 16 to 36 inches,
for grinding Corn, Barley, Feed,
Salt, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz.

2v22-1yins 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works

655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DEWISTON, Proprietor.

HAYLAND, HOOPER & CO., Agents, No. 335 Pine St.

Best means yet discovered for saving fine particle
of Gold. 20v21-4f

The Stetefeldt Furnace.

For information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
14v21-1y San Francisco.

Central Pacific Railroad.

EASTWARD	Express Train Daily	Passenger Sunday except 1d	Mixed*
San Francisco	Leave 8:00 A.M.	4:00 P.M.	5:30 P.M.
Oakland	" 8:40 A.M.	4:42 P.M.	
San Jose	" 9:15 A.M.	4:35 P.M.	
Stockton	" 12:06 P.M.	7:55 P.M.	4:13 A.M.
Sacramento	Leave 1:50 P.M.	8:20 P.M.	7:40 A.M.
Sacramento	Leave 2:10 P.M.		9:00 A.M.
Marysville	Arrive 4:00 P.M.		1:15 P.M.
Chico	" 6:15 P.M.		3:25 P.M.
Colfax	Leave 5:25 P.M.	3:30 P.M.	
Reno	" 1:15 A.M.	4:45 A.M.	
Winnemucca	" 9:10 A.M.	10:15 P.M.	
Battle Mountain	" 12:00 M.	3:10 A.M.	
Carlin	" 3:10 P.M.	10:00 A.M.	
Elko	" 4:10 P.M.	12:30 P.M.	
Kelton	" 1:35 A.M.	7:30 A.M.	
Ogden	Arrive 6:10 A.M.	4:00 A.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6:50, 8:00, 9:40, D 10:20 and D 11:10, A.M. 12:00, 1:50, D 3:00, 4:00, 5:15 6:40 and B 11:30 p.m.
 LEAVE BROOKLYN, B 5:15, B 6:30, 7:40, 8:50 and 10:00 a.m., 1:30, 2:40 4:55 and 6:25 p.m.
 LEAVE OAKLAND, B 9:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 p.m., 1:30, 2:50, 3:50, 5:05 and 6:25 p.m.
 ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:20, E 9:00, B 9:30 and E 11:30 a.m., 1:30, 4:00 and 5:30 p.m.
 LEAVE HEWLETT, B 4:15, B 7:00, E 8:30, B 9:00 and E 11:00 a.m. and 3:25 p.m.
 LEAVE ALAMEDA, B 5:15, B 7:35, E 9:05, B 9:35 and E 11:35 a.m., 1:35 and 4:05 p.m.
 B Sundays excepted.
 D To Oakland only.
 E Sundays only.
 C To Fruit Vale only.
T. H. GOODMAN,
 Gen'l Pass'gr and Ticket Agt.
A. N. TOWNE,
 Gen'l Supt.

Pacific Insurance Company.
No. 422 California St., San Francisco.
Cash Assets \$1,750,000.
Fire and Marine Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

RIDER'S
Automatic Cut-off
Vertical Engines
 Manufactured by the
Albany St. Iron Works,
NEW YORK.
 These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-1y16p

O. J. KING, **T. B. KIMBALL,** **P. D. CODE.**
P. D. CODE & CO.,
 MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
 Canned Fruits and Vegetables of superior quality.
 621 and 623 Front Street,
 Between Jackson and Pacific, San Francisco. [16p]

PAPER-BOATS.
 Have been rowed by the winners of NINETEEN races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give
 A complete list of all the Boat Rowing and Sporting Clubs in the U.S. and Canada, besides much other information of interest to oarsmen. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address
WATERS, BALCH & CO.,
 23v24-3m 303 River Street, Troy, N. Y.

PLATINUM
 Vessels, Apparatus, Sheet, Wire, Etc., Etc.
 For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
 25 Bond Street, New York.
 Platinum Scrap and Ore purchased. 5v20-1v16p1

W. E. LOOMIS,
News Dealer
AND STATIONER,
 S. E. corner of Sansome and Washington streets,
 SUPPLIES ALL
Eastern Periodicals,
 BY THE
 Year, Month, or Number.

NORTH-WESTERN MANUFACTURING COMPANY.

Jefferson Street, bet., Lake and Randolph.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,
Brass and Iron Goods for Steam and Gas Fitters and Engine Builders,
Cast Iron and Malleable Iron Fittings and Castings.

Steam Warming and Ventilating apparatus for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest. **C. S. CRANE,** Vice Prest. **S. W. ADAMS,** Sec'y.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND
GENERAL MACHINERY,
CASTINGS
MADE TO ORDER.



Jobbing Promptly Attended to. 3v22-3m

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



This device is just what its name indicates. As a KITCHEN TOOL it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

P. Davis' Wire and Picket Fence.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per foot. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

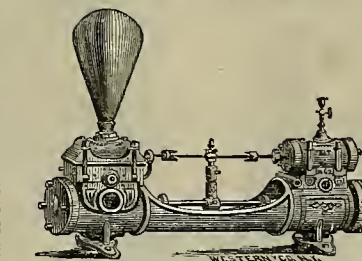
Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufacturer cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

WIESTER & CO.,

17 New Montgomery Street, (Grand Hotel), San Francisco.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
 No. 9, First Street, near Market, San Francisco, Cal.
 23v21-3q516p

1000 Farms

In Los Angeles County.

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Rancho," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-3ms

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liqueur, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-11

W. T. GARRATT, **JAMES HILLMAN,** **W. T. LITTLE.**

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—

HARDWARE,**BAR AND SHEET IRON,****Steel, Coal, Smiths' and Miners' Tools,**

Boiler Tubes, Gas Pipe and Fittings, Belting,

Hose, and

RAILWAY SUPPLIES.

—ALSO AGENTS FOR—

ORIENTAL POWDER CO., OF BOSTON,**SAN FRANCISCO CORDAGE COMPANY****54 K Street, Sacramento.**

7v20-ng

N. W. SPAULDING,**Saw Smithing and Repairing****ESTABLISHMENT.**

Nos. 17 and 19 Fremont St., near Market

MANUFACTURER OF

SPAULDING'S**Patent Tooth Circular Saws.**

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,

MADE OF FULLER RAWHIDE, Factory, South Park Mills,

Brannan street, bet. Third and Fourth, San Francisco.

Pacific Saw Manufacturing Co. are Sole

Agents for H. Royer's Lacing Leathers. 13

PATENTEES

Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon. Commissions dependent upon success. Inclose stamp for full information.

References on application. **E. E. ROBERTS & CO.,**
 Consulting Engineers, 15 Wall Street, New York.
 1v213m16p

PACIFIC**Rolling Mill Company,**

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting.

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Con-

necting Rods, Car and Locomotive Axles

and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

Orders addressed to **PACIFIC ROLLING MILL**

COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron 9v143m9p

The patent portable, automatic self-regulating

NEW GAS "MACHINE"

Highest and only Medals and official testimonials awarded the Inventor. Address, N. G. M. Co., 407 California Street, San Francisco. 18v21-3m

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansome St.

GEO. L. FAULKNER, Agent.

1v22-3mins

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JAN. 28, 1871.

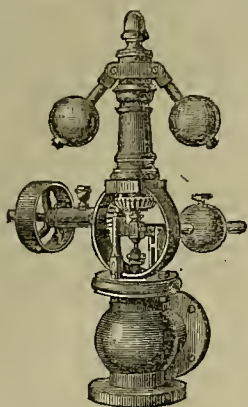
VOLUME XXII.
Number 4.

Automatic Stop Governor.

In the accompanying engraving, a self-acting governor is illustrated, which not only regulates the flow of steam to the cylinder, but also serves as a stop-motion in case of emergency when the engineer is not close to the throttle-valve. The action is obtained by the construction of the valve and the operating mechanism.

The weighted lever, shown in the cut, connects with the valve-stem by a square socket, in which it is free to move up or down. This lever takes up the lost motion, in the joints and pins of the governor-arms, and partially balances the valve, rendering it easy to move and very sensitive to the action of the arms. By means of a set-screw on the standard, shown in the engraving, the opening of the valve is regulated so that the engine can be slowed to any degree or stopped. The weighted lever also furnishes a medium for regulating the speed.

The valve is a hollow cylinder, with four guiding wings, and three seats acting on



four seats in the chamber. Being hollow, and having clearance between the seats, it is balanced so soon as it is raised slightly from the seat, the steam pressing both on the inside and on the outside of it. So long as the engine runs regularly, the valve floats in steam and plays between the seats. If a belt breaks or runs off, the weight on the lever causes the valve to close on the upper seats, shutting off steam and stopping the engine, and thus, by automatic action, prevents the possibility of accident from any cause of the kind.

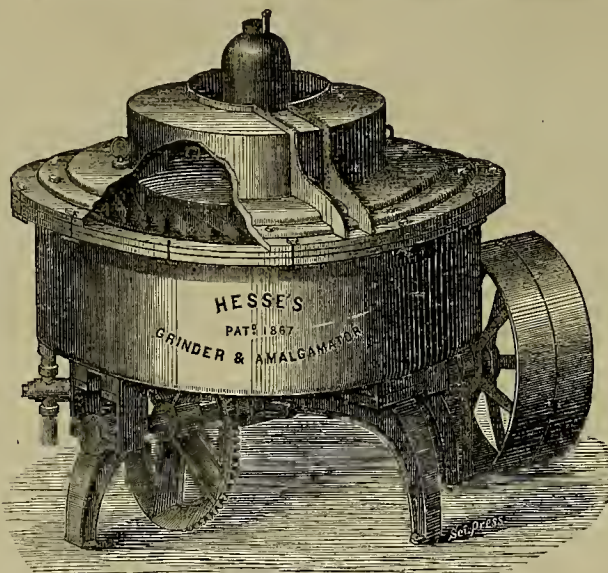
It will be seen from the above that great sensitiveness of action is produced without the use of springs or such high rates of speed as are generally necessary in order to control the speed of the engine. With this governor, the speed can be changed from one to twenty revolutions per minute, or *vice versa*, by simply changing the position of the compensating ball on the lever, without making any change in pulleys or stopping the engine.

The governor and valve are the subjects of three patents, issued in 1864 and 1865, and are very widely used in all parts of the country. They are manufactured by Gardner & Robertson, Quincy, Ill., and the agents for the Pacific Coast (to whom

address any enquiries) are Messrs. Darling & Co., 629 Washington street, San Francisco.

The Hesse Grinder and Amalgamator.

Our engraving represents a pan which was invented some time ago, but which the proprietors have been unwilling to present to the general public until they had made such alterations and modifications as should be suggested by working tests, and thus be able to have a perfected machine. They are now confident that their pan will work in a most superior manner.



HESSE'S PATENT GRINDER AND AMALGAMATOR.

The pan is intended for use behind a battery or, at least, on ore which has been reduced to a certain degree of fineness. That the principles on which it is founded in part may be more readily understood by our readers, to many of whom they will be new, we add a small sectional cut of one-half of the pan. The reduced ore and water are introduced through a central hopper, A, and pass down between wings, B, which, revolving, communicate motion to the mass. The centrifugal force thus imparted drives the current against the side of the pan and up chambers, C, arranged around the periphery. These chambers are lined with amalgamated copper plates. The current issues from the top of these chambers, and as it passes inward, such is its speed that the larger, and therefore heavier, particles fall down into the space, D, while the finer and lighter ones are carried over through separating channels, E, arranged on a revolving disk and of the construction denoted in the large cut, where the cover has been broken away to show them. From these the pulp passes into a revolving trough, F, containing mercury, down under an iron sleeve, up the other side of the trough to G, and thence out the discharge-hole. The heavier particles spoken of as falling down D, are here subjected to the grinding action of (horizontally revolving) shoes and (fixed) dies, and then join in the general current at H, passing

again up C, etc. The arrows show the directions of the currents. For the sake of clearness, the shoes are not shown in the cut. The die, I, is a band of iron, as denoted in the small engraving.

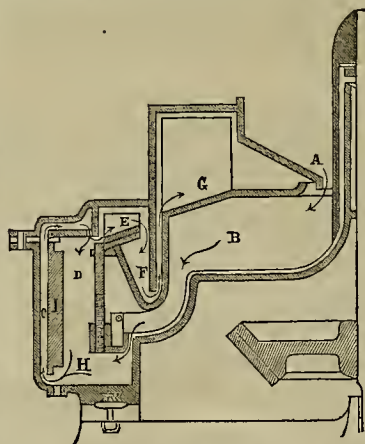
The revolutions of the moving parts are so regulated that the speed of the currents are kept under complete control, and thus the separation of the heavier and lighter particles can be effected with the utmost nicety. We have seen samples which were remarkably uniform in the size of the grains. In the revolving trough, F, the mercury necessarily assumes a position

The power (about 2-horse) required to drive the pan, is much less than is necessary for ordinary grinding pans, while the work accomplished is said to be treble in amount. From ten to fifteen tons of ore, as received from the batteries, can be treated daily, being reduced to a very fine and uniform powder. The quantity, of course, varies according to the hardness of the rock or the degree of fineness requisite. The machines require but little attention when once set in operation. The shoes and dies are the only parts subjected to much wear and are easily replaced or adjusted. The waste of metal, on account of the sorting of the ore, etc., is only two to two and a half pounds per ton of ore ground, it is affirmed, which is much less than is commonly the case.

The pans work continuously. The copper plates (10 square feet) and the arrangement of the mercury troughs afford every facility for amalgamation, forcing every particle of ore, as nearly as this can be done, to come in contact with the quicksilver. Moreover, the amalgam and quicksilver from the batteries are caught and saved. The device is available in the reduction of sulphureted ores, reducing the mass exceedingly fine and sizing the particles so perfectly as greatly to facilitate the concentration of the sulphurets, and giving a large percentage of gold over similar ores not thus ground and sized. The sulphurets are left in excellent condition for further treatment, and we are told that the cost of subsequent chlorination is \$5 per ton less than when the ore particles are coarse and unequal in size.

These machines are in successful operation at the Amador M. Co.'s mill, Sutter Creek; at Mormou and Poundstone's mill, same place, and at the Keystone mill, Amador City. We are told that the saving in quicksilver, as well as in gold, is very considerable,—an important item in these times.

The inventor, Mr. Hesse, of Oakland, is one of the very best mechanical engineers on the coast, and the millmen, who are part proprietors, have had every opportunity during the last three years of suggesting little modifications and improvements called for by working tests. Messrs. Lord & Peters, 304 Battery street, San Francisco, are agents for the pan and will give any further information desired.



The sorting of the particles before grinding prevents much wear on the shoes and dies. The amalgamated plates in the chambers, C, collect quite an amount of precious metal. We have no space to speak of other details, but the speed, size of chambers, apertures, etc., have been calculated to a nicety, and thus the whole process is kept under perfect control. Moreover the construction of the shoes, etc., to secure regular wear and working, have been carefully attended to.

PHOTOGRAPHS WANTED.—The publishers of the SCIENTIFIC PRESS and of the RURAL PRESS, being desirous of retaining more accurately in their memory the lineaments of their correspondents to whose interesting articles they feel deeply indebted, propose instituting a "Correspondents' Gallery," and therefore would be most pleased to receive the photographs of any and all of those who communicate with the papers. It is not proposed to "publish" these photographs at present, but it will be most pleasant to have the faces where they can be looked at, and where any reader or writer, on calling at the office, may have an introduction to those with whose ideas he or she has become acquainted. Will our many kind friends oblige us in this matter?

MECHANICAL PROGRESS.

BORING MACHINES AT MOUNT CENIS.—Prof. Ansted says it is a curious sight to see a workman connect an elastic tube of half an inch diameter with one of these machines, and watch the result when a tap is turned. A piston-rod, in a short cylinder, immediately flies backwards and forwards with wonderful rapidity, regulated by a small but rather heavy fly-wheel. Immediately a ponderous chisel, 6 or 7 feet long and more than an inch in diameter, is set in motion, and strikes a succession of heavy blows against the stone. Each time that the chisel strikes it is withdrawn a little way, slightly turned, and immediately strikes again in the same hole. The stone experimented upon being of the hardest and toughest kind, the effect is not seen for several strokes; but within two minutes, a steel chisel was completely blunted, and there was a hole two inches deep in the mass of quartzite. Holes are bored in this way in an hour that would formerly have taken a day. The machines occupy very little space, and can easily be moved where needed. As many as seventeen are at work together in the end of the tunnel. As the power is compressed air, they not only add no heat to the interior, but render it cooler by the absorption of heat during expansion. The air, when it escapes, is available for ventilation. It would be quite impossible to carry steam at a high pressure through pipes four miles long, but little diminution of force is experienced in working with the air, although all the engines and condensers, as well as the cylinders for storing the air, are outside the mouth of the tunnel. The length of pipe at present on the Piedmont side is four and one fourth miles. The pressure of air commonly employed is six and a half atmospheres, or nearly 100 lbs. on the square inch.—*Sci. American.*

LOCOMOTIVES FOR CANADA.—The Rhode Island Locomotive Works have a contract with the Great Western Railway of Canada to supply that company with thirty-two locomotives. Sixteen have been already shipped, this week seven more were sent, and the remaining nine will follow this month. The engines have cylinders sixteen by twenty-four inches. The driving wheels are five and one-half feet in diameter. The fire boxes are built of steel, and everything about them is composed of the very best material. They have a railing a few inches high around the top of the tender, and the bell, which is on the forward platform, is kept incessantly ringing when the engine is in motion by its being connected with the eccentrics.—*Chicago R. R. Gazette.*

WOOD-SAWING MACHINE.—A machine recently designed in Minnesota, more particularly for railroad work, is thus described by a local paper: "It consists of two saws so placed that two cuts can be made at once. The wood is fed to these as grain is fed into a threshing machine, and after being sawed is carried away by an elevator, like the threshed straw. The machinery is propelled by an eight-horse power engine. The whole apparatus, engine, boiler, saws and elevator, is built upon a platform, and enclosed like a box-car, in convenient compass to be loaded upon a flat-car, and shipped from station to station. With a little change, trucks can be placed underneath like a pile-driving car, and then it can be moved upon the track as a separate car. In ten hours it can prepare from 90 to 100 cords easily. It requires nine men to work it, feed and take care of the wood."

"FRET" MACHINES, FOR CUTTING PATTERNS.—The London *Mechanics' Magazine* describes specimens shown at the Workmen's Exhibition. "They are very simple in construction; they consist of a table upon four legs, with a cross-bar to carry the treadle or foot-rest, and which has a strip of vulcanized rubber attached to it for connecting the lower end of the saw. This saw then passes through a hole in the table, and is fastened at its upper end to another elastic strip, which is suspended from an arm springing over to the front from the back of the table. The motion is obtained from the movements of the treadle by the foot, with a small amount of labor, the upper elastic strip being strained to a pressure of about 30 pounds in first setting the saw; the rebound of the saw is easy, so that the fatigue of the foot is reduced to a minimum."

GAS PURIFICATION.—ST. JOHN & CARTWRIGHT.—The above named parties prepare a composition for gas purification from the Staten Island iron ore, a natural product which is found to combine the essential conditions of a gas purifier in a remarkable degree. It is a nearly pure limonite, highly porous and granular. Prof. H. Wurtz sets forth the importance of the improvement in the *Gas Light Journal*, and adds:—"The patented device of these gentlemen, also, for increasing the permeability of the mass, without introducing any inert matter, by using waste borings and turnings of iron for this purpose, (instead of sawdust, straw, etc., as in European practice,) is highly ingenious and valuable. The metallic iron thus introduced is useful from the start, and is gradually converted into a highly active hydrated oxide, so that the improvement of the new composition by use, is of the most marked character. Every time it is used, after revivification, until too heavily charged with sulphur, it improves in power and endurance. (We shall very shortly lay before the public some marvelous facts under this head.) A more striking example of the "killing of two birds with one stone," has rarely occurred in the history of human invention; and it is one of those applications which, from their simplicity, excite wonder that they "never were thought of before."

CONNECTICUT MANUFACTURES.—We select the following from the January "Notes" of the *Manufacturer and Builder*: The shops of the Colt Firearms Co. at Hartford are now running on the Gatling gun, upon which Mr. George Kinne has made important improvements. One of these is the mounting it upon a turn table which gives it command of a range of 15°; and he has moreover added an automatic arrangement which gives it at will a continual change of range by the simple turning of the crank used to discharge it. The Weed Sewing-Machine Works, adjacent to the above, employ 200 hands and turn out 170 finished machines daily. The buildings are soon to be enlarged. The various parts of this machine are made by special machinery. The Cheney Silk Works in Hartford, and in Manchester, eight miles distant, cover two and a half acres, and employ 1,000 persons, mostly women. They consume 200 pounds daily of raw material, and produce silks of such excellence that A. T. Stewart, "the shrewdest merchant in America," contracts for their entire product.

AMERICAN RUSSIA IRON.—We clip the following from the Philadelphia Cor. of the *Iron Age* Jan. 5th: "As is well known to the trade, the secret of manufacturing an article of sheet iron possessing the qualities and finish of Russia iron has never been successfully attained here or in England. We have, it is true, imitations which, while to the eye nearly as good, do not possess the durability for which the Russia iron has been so celebrated. A firm in this city claims to have discovered the method of manufacturing an article fully equal to the best Russia iron without the use of acids, and at a cost not exceeding that of our ordinary sheet. We are promised full information in regard to the process."

RUBBER TIRES FOR RAILWAY WHEELS. An English patent has been taken out "for the adaptation and application of vulcanized india-rubber bands to the tyres of locomotive and railway wheels generally. For this purpose is employed a strong endless band of rubber, of the width of the tyre of the wheel from the inner side of the flange to the outer face, and of such a thickness as will be regulated by the weight of the carriage, but in no case less than two inches thick when in position. The diameter of the band should be so much less than the diameter of the wheel as to require considerable force to stretch it to the circumference. The inner side of the band is previously coated over with cement, by which it is secured in its place. Segmental pieces of tough wood or metal are secured to the outer face of the tyre so as to confine the band laterally."

NEW MAIL LOCK.—They are now making at Colt's factory a new patent lock for the United States mail bags. When fastened, a numbered plate of glass covers the keyhole, and this glass has to be broken before the bag can be unlocked or the lock tampered with. It is said to be the most complete lock ever invented. Five thousand of them have been ordered by the Post Office Department.—*Iron Age.*

SCIENTIFIC PROGRESS.

CAUSE OF THE MOTION OF GLACIERS.—J. Croll, of the Geological Survey of Scotland, contributes an article upon this subject in the *Philosophical Magazine*, in which, after noting the fact that the ice of a glacier, though solid, nevertheless behaves in some respects like a plastic substance, he shows that it shears as it descends, in such a manner as to prove that some other force in addition to gravitation must be in action, that alone being insufficient to account for the phenomena. What, then, is that force? It is found that the rate of descent depends upon the amount of heat which the glacier receives. But in what way does the heat aid gravitation? We quote: "There seems to be but one explanation (and it is a very obvious one), viz: that the motion of the glacier is molecular. The ice descends molecule by molecule. The ice of a glacier is in the hard crystalline state, but it does not descend in this state. Gravitation is a constantly acting force; if a particle of the ice lose its shearing-force, though but for the moment, it will descend by its weight alone. But a particle of the ice will lose its shearing-force for a moment if the particle loses its crystalline state for the moment. The passage of heat through ice, whether by conduction or by radiation, in all probability is a molecular process; that is, the form of energy termed heat is transmitted from molecule to molecule of the ice. A particle takes the energy from its neighbor, A, on the one side, and hands it over to its neighbor, B, on the opposite side. But the particle must be in a different state at the moment it is in possession of the energy from what it was before it received it from A, and from what it will be after it has handed it over to B. Before it became possessed of the energy, it was in the crystalline state—it was ice; and after it loses possession of the energy it will be ice; but at the moment that it is in possession of the passing energy is it in the crystalline or icy state? If we assume that it is not, but that in becoming possessed of the energy it loses its crystalline form and for the moment becomes water, all our difficulties regarding the cause of the motion of glaciers are removed."

PLATINUM FUSIBLE WITH THE COMMON BLOWPIPE.—W. Skey, of the New Zealand Geological Survey, finds that if the loss of heat by conduction be guarded against, platinum can be fused with an ordinary blowpipe blast through a candle flame. He substitutes for the metallic nozzle, a tube of clay or glass. We quote him from the *Chemical News*:—"By this means, fine platinum points were fused in an unmistakable manner to beads. The blast was that ordinarily used in the laboratory by the use of the hydrostatic blowpipe, the flame being that of a stearine candle. As it might be urged that, perhaps, the platinum I treated might contain an admixture of more fusible metal, and that its melting-point might thus be reduced, I prepared some of the platinum for special trial, which was absolutely free from such fusible metals. As the fusing point of platinum has been ascertained to be 4593° F., we must, from the above experiment, conclude, that if proper precautions are taken to prevent loss of heat by conduction, this high temperature can be produced by the ordinary blowpipe operating upon flames of this description."

DIFFERENT ALCOHOLS.—In an article on the alcohol of wine by Dr. Rabateau, in the *Union Medicale*, we find the following:—"Two important alcohols are to be considered in relation to the fortification of wine (vinage)—the amylic, which is very toxic, and forms the major part of the residuum of brandy made from fecula and beet-root, and is found in that of brandy made from grapes, apples, etc. (*eau de vie de marc*), but not at all, or in inponderable traces, in that made from wine; and the butylic, less toxic than the former, but still slightly so, which was discovered by Wurtz in the residuum of the distillation of brandy from fruits (*eau de vie de marc*), and produced in considerable quantity in the fermentation of the molasses of beet root. The partisans of alcoholization of wine pretend that that of potatoes and beet-root, which are now articles of commerce, are as pure as that of wine, and contain neither butylic nor amylic alcohol. This is a mistake; for it is extremely difficult to purify the spirits of fecula and beet-root from these butylic and amylic alcohols."

THE GEOGRAPHY OF THE SEA BED.—This was the title of a paper read by Capt. S. Osborn, R. N., at a late meeting of the Royal Geographical Society. We quote from a notice in *Nature*: "It has been definitely ascertained that the greatest depth of the ocean does not reach 3,000 fathoms in any part where telegraphic lines have been laid. The bed of the North Atlantic consists of two valleys, the eastern extending from 10° to 30°, the Western from 30° to 50° West longitude. The extreme depth of the eastern valley is under 13,000 feet, which is less than the altitude of Monte Rosa. This valley has been traced southward to the equator. It is separated from the western valley by a ridge in 30° West long., in which the average depth is only 1,600 fathoms. This ridge terminates to the north in Iceland, and southward at the Azores, so that it is volcanic in its character at both extremities. Its extreme breadth appears to be under 500 miles, and the Atlantic deepens from it on both sides. Explorations carried on in the Mediterranean, the Red Sea, and the Indian Ocean, showed similar uniformity in the level of the sea-bottom; and the general conclusions arrived at by Capt. Osborn were that in the deep sea there is an absence of bare rock, and that there are no rough ridges, canons, or abrupt chasms. Moreover, that the bed of the deep sea is not affected by currents or streams, even by those of such magnitude as the Gulf Stream; but that it rather resembles the prairies or the pampas of the American continent, and is everywhere covered with a sort of ooze or mud, the debris of the lower forms of organic life."

GLACIERS, NOT ICEBERGS.—Prof. J. D. Dana has an article in *Silliman's Journal* on the question whether the glacial era in Central New England was an era of glaciers or of icebergs. American geologists are divided in opinion. We give the conclusion: "The facts show, beyond question, that in the Glacial era the transported blocks came from the comparatively low regions, in the very bottom of the supposed Iceberg sea, not far to the north of New Haven, instead of from distant and elevated heights to the northeast and northwest; and this was true of all the drift material. The observations of others over New England, as well as those I have made over Connecticut, sustain the conclusion that the sand and gravel of the unstratified drift has not come from remote points, but has been shoved southward by some agent that could gather it up over the breadth of the land and bear it onward to drop it after a few miles, or scores of miles of transportation. All this is evidently entirely impossible work for icebergs. Since, then, icebergs cannot pick up masses tons in weight from the bottom of a sea, or give a general movement southward to the loose material of the surface; neither can produce the abrasion observed over the rocks under its various conditions; and inasmuch as all direct evidence of the submergence of the land required for an iceberg sea over New England fails, the conclusion appears inevitable that icebergs had nothing to do with the drift of the New Haven region, in the Connecticut valley; and, therefore, that the Glacial era in Central New England was a *Glacier* era."

GEOLOGICAL SURVEY OF CALIFORNIA.—The first volume of the Ornithology, soon to be issued, is a royal octavo of 592 pages, containing 662 cuts. The *American Journal of Science and Arts* speaks thus of it: "This admirable report is far in advance of any similar work on Ornithology hitherto published in this country, if not in Europe, and does great honor both to the State of California and the officers of the Geological Survey. The first volume contains descriptions of all the land birds hitherto found in the region north of Mexico and west of the Rocky Mountains. Each genus is illustrated by a reduced full length cut of one of the species, and by natural size cuts of the wing, tail, bill, and foot, which will render it very easy for any one to recognize each genus, while nearly all the species are illustrated by full size cuts of the heads, often of both male and female. The cuts are nearly all original and have been drawn and engraved with great care and skill. The cuts are, in our estimation, superior both in accuracy and beauty to any hitherto published in any work on ornithology, and are far more satisfactory than the highly colored, but often coarse and inaccurate, lithographs, so often employed to illustrate ornithological works."

CORRESPONDENCE.

Bound East.

Omaha to Chicago.

Written for the Press.

The traveler who intends going from Omaha to Chicago may find himself involved in a puzzling predicament, rather similar to that in which a famous English wit was once placed. No doubt you are all familiar with the story, but yet I'll risk repeating it. The gentlemen referred to, while nursing in a grave-yard, found the following inscription on a tomb-stone:

Stranger, reflect, while you pass by;
As you are now, so once was I:
As I am now, so you must be;
Therefore prepare to follow me.

After reflecting, the wit added these lines:

To follow you, I'm not content,
Unless I know which way you went.

In a similar manner, I was rather troubled how to get to Chicago, for there are three roads, making the connection, to choose from, viz: the Chicago and Northwestern, the Chicago, Rock Island and Pacific, and the Burlington and Missouri River. I pondered over the matter, questioned every one who had tried either route, and finally made up my mind. My experience then and since has confirmed me in the belief that I went the best way.

The Burlington Route

Isthe one I selected. I found that the road was well built and passed through fine scenery and by points which one wishes to see, that the cars were of the most comfortable description, the employees attentive and polite, and the time reduced to a minimum with due regard to safety. The road runs in quite a direct line, the road bed is excellent, the iron, the heaviest in use in America, weighing 65 lbs. to the yard, and there being a double track part of the way. The passenger cars are sumptuous, — Pullman Palace Drawing Room, Sleeping and Hotel Cars, Saloon Smoking and Passenger Coaches, and Pullman baggage cars, — yet the prices are not higher than elsewhere. The passenger cars are furnished with Miller's patent couple and buffer, are lighted with gas and heated with hot air. The sleeping cars have Baker's patent car warmer and other improvements. Even the second-class cars have cushioned seats and run through on express trains.

The country passed through is delightful. We first ride for 20 miles on the Missouri Bottom, formed by river deposits. Then we rise up, riding over rolling prairies and crossing numerous streams skirted with trees. Herds of cattle, from Texas, graze alongside of the track. At Glenwood we see the Soldiers' Orphan Asylum, and in this vicinity hedges of *Osage Orange* are frequent. At Red Oak we connect with the train from Nebraska City, from Kansas City and Denver, Colorado, even. Our road ascends gradually up to Creston, about 80 miles from the Missouri River, and thence we have a descending grade to the Mississippi, at Burlington. As we continue on, better country is found, better villages are seen. Near Ottumwa we cross the Des Moines River, and near Mount Pleasant, the Skunk, — euphonious stream. As we approach the Mississippi we view fine vineyards, and finally, after having crossed the whole width of fertile Iowa, we reach the Father of Waters at Burlington.

Here we roll into Illinois over the great iron bridge, which spans the Mississippi. This splendid structure rests on nine piers, is 2,200 feet long, and has a draw 360 feet long opened and shut by steam power. In two hours we come to Galesburg, a great railroad center and manufacturing site. We now come into the garden spot of Illinois, which extends along for a width of 150 miles, is dotted with fine villages and handsome country seats, is covered in summer with waving oceans of grains. Over the flat prairie, with the richest of soil and the best of cultivation, we rush along, seeing new beauties appearing and disappearing every moment. At Aurora we find a new town which is old in wisdom. Here

is a schoolhouse which cost \$80,000. Near Chicago we pass through the charming suburban town of Riverside, and finally, with a splendid view of lake and city, we arrive at our destination. W. H. M.

Notes of Travel in San Joaquin County.

Fine Ranches.

(Continued from page 35.)

Mr. Dodge is also the proprietor of 550 acres of fine land at the same place, all of which is under cultivation. He has a vineyard of 50 acres, and proposes to set 50 acres more of vines this year. He harvested 250 acres of wheat and 40 acres of barley last year.

Mr. Shippee, of the firm of Shippee, McKee & Co., has one of the finest ranches in the country. It is situated five miles north from the city, on the Calaveras river, and comprises 600 acres. The river is on the east or upper side, and the Cherokee Lane Gravel Road runs through its center. The ranch consists entirely of bottom land and can be irrigated at any and all seasons. At the season of the drought, it was irrigated and produced 40 bushels of wheat per acre, and two tons per acre of the best of oat hay. Last year it was again irrigated and the grain sown in January and February, produced 35 to 40 bushels of wheat, 40 to 50 bushels of barley, 50 to 75 bushels of

burned out, starting again without a cent. Nearly all of the principal tanneries in this State are now owned and run by many who first learned the trade of Mr. W.

Lane's grist-mill cost about \$50,000, and is owned by R. B. Lane. It contains six run of burrs, is run by a steam engine with 18-in. cylinder and 36-in. stroke, has two boilers, 52 inches in diameter and 16 feet long, containing 46 4-in. tubes. Its capacity is 240 barrels per day. They run only 190 days on the average per annum, and made last year 14,000 barrels of flour. They consume about 600 tons of coal per annum.

The State Insane Asylum, (G. A. Shurtleff, M. D., Supt., A. Clark, M. D., and J. Titus, M. D., Assistant Physicians,) on the first of January, 1871, contained 1,000 patients—766 males and 294 females.

Grapes and Wine.

Among the best varieties grown here for market are the Black Hamburg, Black Malvaia, Black Prince, Black Ferrara, Reine de Nice, White Muscat of Alexandria, Black Morocco, Madeline, and Chasselas-Fountainbleau. For wine, the White Tokay, Chasselas-Fountainbleau, White Fontignan, Moselle, Chasselas-Musque, Red Fontignan, Black Burgundy, Zinfandel and Black Malvasion.

For port and sherry, for which this county is peculiarly adapted, the California grape is used. All the premiums given by the Horticultural, Agricultural and Pomological Society, of San Francisco, and by the State Agricultural Society, were for sherry made near Stockton. The climate

kind in the State. He is not for sale. The roadsters are from the Chieftain and Black Hawk stocks. At the State Fair in 1869, Mr. O. took the first premium on two-year old bull; first premium for best thoroughbred Durham milk cow; first premium on best calf; first premium for best three-year old heifer; also for best two-year old, and first for best yearling; also first premium for the best herd, which is a much better endorsement than I could possibly give you in an article of this length.

Farm Implements.

Mr. O. was the inventor of a *Hay and Grain Elevator*, the fame of which in this County is sufficient without a word from me. He also is interested in and has practically used the *Self Adjustable Harrow* of Mr. David Gills. This harrow is 7x9 ft, and made to be coupled together side-wise in gangs of three or less. With a gang of three, with ten mules, it will harrow a strip 21 ft wide and accomplish 30 acres per day. Each section has eight adjustable cross pieces, with eight steel teeth in each, and when in motion, no two teeth follow each other. Although the teeth are nine inches apart, four of them are so arranged as to thoroughly harrow under the side piece, which is needed when used as gangs. This harrow never clogs, the cross-pieces each being connected by a lever in the rear so arranged as to throw the teeth at any angle from a simple movement of the lever, any ordinary obstacle is over come. Two small ten-inch wheels are used, one on either side, in front, which prevent its miring in soft ground, or clogging in rough ground.

I consider it the best harrow in the State. Each section works independently, and can be used separately, like any others.

An arrangement of the Header-Bed has been conceived by Mr. O. which I think will come into general use. Its peculiarity is that it can turn a square corner, although the bed is 20 ft long. The hind wheels of an ordinary wagon are placed upon spindles arranged on the hind part, and the forward wheels so arranged as to come under to the center. Upon the whole this farm is as complete in working trim as any in the County.

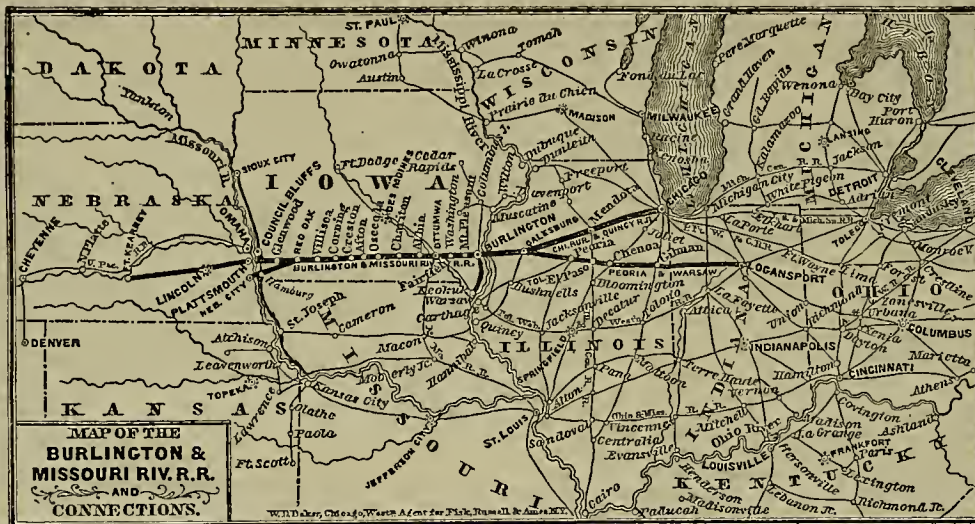
Sargent Brothers Ranch.

Is situated about five and a half miles from Woodbridge and fifteen miles N. W. from Stockton. It consists of Tule, Overflow, and Upland. The entire Tract contains about 10,000 acres, about 6,500 acres of which is Tule, about 1,500 of Overflow, and 2,000 Upland. The former is bounded on the west partly by the Mokelumne

River, on the south by Treadway Slough, on the east by the Overflow and Upland, and on the north by Island Mouth and Sycamore Slough, a large portion of which is so far reclaimed as to prevent any overflow except during an extreme flood, which would cover the entire tract of tule and overflow. The Sargent Bros. have been constantly engaged in ditching and building levees since 1864. For the six months just past from 10 to 40 men have been employed. Some 10 miles of levee and ditch have been constructed, costing from \$15,000 to 20,000 thus far. Now, in the driest season, the grass is from eighteen inches to three feet high, and the cattle are in as fine order here as any on the uplands in the best season. They have a large number of horned stock, and eventually will have one of the best stock ranches in the State. The Sargent Brothers, four in number, each equally interested, own and run three extensive stock ranches, Dr. J. L. and Ross Sargent attend to the affairs of the one above mentioned; J. P. Sargent attends to the one near Gilroy, consisting of one league of land; and B. B. Sarge attends to about three leagues of land at Monterey, all of which are well stocked with cattle, etc. They will farm on the uplands of the (San Joaquin Co.) ranch, this year about 700 acres of grain, wheat and barley. I had the pleasure of a ride over this entire ranch this week, and points passed over by us in a buggy, I was informed three or four years ago were only accessible by a boat.

L. P. MC.

WHITE PINE BULLION.—From January 1st, 1870, till December 31st, Wells, Fargo & Co. shipped from their office in this city, says the *White Pine News*, the following amount of bullion, which was produced only by mills in this district: Shipped West 647 bars—value, \$738,802 78; shipped East, 642 bars—value, \$851,852 88. Total, 1,289 bars; value, \$1,590,655 66.



oats and two and a half tons of hay per acre. He has this season about 350 acres in wheat, oats and barley, and about 150 acres in meadow for hay and the balance in pastures, orchards, etc.

His stock consists of fine horn stock and Essex and Suffolk hogs, while his horses are among the best of trotters. Among them may be mentioned the brood mares "Lady Fine" and "Lady Me," and several of the Belmont and Blackhawk stock. He claims to have 20 of the best trotting colts in the county. He also owns the young horse "Tidal Wave," and the "American Boy." For one of his colts he has been offered \$1,000; this colt has trotted in the forties. His motto is the best or none. He says it costs no more to raise a good horse than it does a poor one.

FINE POULTRY.—I had the pleasure of seeing the finest lot of poultry, a few days since, that I think there is in the State. They are of the "Light Brahma" breed, imported from Massachusetts, and New York, by John Sedgwick, Esq., of Stockton.

Stockton Manufactures.

The Pacific Tannery, Kullman, Wagner & Co., makes a specialty of sole, harness and upper leather. Here twenty-five men are regularly employed, and when working to their full capacity they turn out 2,000 sides per month; now, however, only about 1,200. The annual production is from 20,000 to 24,000 sides.

Wagner & Harrison's tannery, situated in the rear of the insane asylum, is doing a fair business in a small way, working at present five men. Of Mr. J. C. Wagner, one of the proprietors, especial mention is merited, he being the pioneer on the coast in this business. He started here first in the year 1852, and has been several times

is so warm that all the varieties ripen to perfection. The California, Black Prince and Zinfandel, will produce from eight to twelve tons to the acre, on vines eight and ten years old, and in some seasons even more have been raised. As high as \$500 for California, \$1,500 for Black Prince, per acre, has been realized here; the grapes being shipped to San Francisco.

For raisins, the White Malaga and White Muscat of Alexandria, are used, and make raisins as good as the imported. The Fifer Zagors is too soft, and rots in many localities.

Ranches—Stock.

William L. Overhiser's ranch, of 800 acres, is situated four miles northeast from Stockton, on the Waterloo gravel road. It lies on both sides of the road, and its soil is in as fine condition at this writing as many I have visited in better seasons, i. e. for rain, less than three inches having fallen yet. He will farm about 400 acres in barley this year—his principal product in cereals.

His fine stock consists of about 100 head of horses and mules, about 30 head of fine cattle, and about 2,500 head of thoroughbred sheep, and will have 600 head of Spanish Merino bucks for sale this season. This band of sheep is the largest on this coast, if not in the United States, of thoroughbreds. C. C. Smith, however, is interested in this portion of his stock. His milch cows are as fine a lot of Durhams as I have ever seen, for size, build, and milk-giving qualities; all of the short horn and short-legged breed. His bull, Grand Turk, of Oak Home, is a monster, measuring eight feet in length from his pate to his haunches, and stands five feet high. His breast hangs within eighteen inches of the ground. He weighs 2,000 pounds, and his pedigree is recorded in the American Herd Book, on page 195, article 8,258; he will be five years old next May and is valued by Mr. O. to the extent that he would not swap him for any other of his

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

THE GLOBE MILL.—*Chronicle*, Jan. 14th: The machinery is being put in position as rapidly as possible. Now that the Marion claim has been purchased by the Globe Co., we have more confidence in the ability to ship bullion during the summer—providing the new process can do all that is claimed.

LEVATHAN.—*Miner*, 14th: Good as the ore has been in this mine, we saw some samples this week which eclipse anything before found. What is better, this ore was found in one of the drifts of the upper works, where no ore has been heretofore struck. Two men were set at work, and before picking an hour struck a large body of ore, from which they took out over seven hundred dollars' worth, dump value, during their shift.

TARSHISH.—Fine ore continues to be found in the two Tarshish claims of the Monitor & N. W. and Silver Glance, indicating fairly that the drifts are in the right direction for the main body.

BUTTE COUNTY.

ANOTHER IRON PIPE FOR CHEROKEE.—The *Butte Record* learns that the Cherokee Mining Co. have determined to bring water on to their claims. The water is taken from Butte creek, and from a point known as "Old Kunkle Ranch" to Cherokee will have to be carried in an iron pipe. This will require some six or seven miles of pipe. We are assured that work has been commenced on this ditch.

CALAVERAS COUNTY.

WHAT CHEER.—*Chronicle*, Jan. 21st: Work has been commenced in earnest upon this mine in Chili Gulch. The necessary buildings are erected, the machinery upon the ground and everything in readiness. An incline tunnel, 480 feet in length, with a dip of five feet in twelve, will have to be run to reach the channel. Work is already commenced upon it.

WATER.—There is now a full head of water in the ditch and miners in every direction are busily employed. The quartz and cement mills are again in active operation.

EL DORADO COUNTY.

THE DITCH PROSPECT.—*Placerville Democrat*, Jan. 21st: We have reliable information that there will be no conflict between the rival companies who are asking aid of Congress to assist in the construction of the greatly needed canal through this county.

CLARKSVILLE.—A correspondent writes to the *Union*, January 13th: The placer mines in this vicinity are attracting some attention. There are ten or twelve companies in successful operation. I was informed yesterday that one company had last week realized to the hand as high as \$20 per diem. There is one company about starting a hydraulic power in the American ravine, to wash over the old diggings heretofore worked with picks and shovels. The Eureka Ditch Co. have repaired their ditches and will in a short time be able to supply an abundance of water cheap.

INYO COUNTY.

KEARSARGE.—*Inyo Independent*, Jan. 14th: Last week two large teams from Reno, loaded with machinery for the Kearsarge improvements, arrived at the mine. The *Gold Hill News* of Jan. 12th, says that an assay made at that place of ore from the croppings of the Kearsarge at the foot of the mountain, showed silver \$657 per ton.

NEVADA COUNTY.

NEW YORK HILL.—*Grass Valley Union*, Jan. 20th: We learn that arrangements are being made to start the New York Hill mine and mill in operation at an early day. This mine in times past paid well.

THE RAIN.—*Transcript*, Jan. 24th: On Sunday rain commenced, and up to the present time we have the most favorable storm for mining interests that we have had during the season. There are hundreds of hydraulic claims waiting for water to commence working. Up to Saturday there was not more than 900 inches of water at the head of the South Yuba Co's ditch. Notwithstanding this, it is not yet too late. In Eureka, Nevada, Grass Valley, Washington and Little York, very extensive claims have been fitted up, and the amount of washing done may be far beyond any previous season.

RIOH PROSPECTS.—We understand the Kansas Co. have run around the boulders

which they struck in the drift, and reached pay gravel which prospects exceedingly well.

OSBORNE HILL.—*Grass Valley Union*, Jan. 24th: The company are doing well. Pascoe & Co., who are taking out rock on shares with the company, are also doing well. A clean-up from 116 tons of rock has given \$48 per ton, or a total of \$5,568.

GRAVEL.—The rain has caused the gravel diggers to rejoice. Yesterday Webster & Co. started up steam on their hoisting and pumping engine, and in a few days will have their mine free of water, and have also plenty of gold-bearing gravel ready for washing. McSorley & Co. also started up yesterday. A "Shoo-Fly" nozzle has been put up, and water turned on, which made the gravel bank rapidly melt away. The miners of Randolph Ridge are all at work.

SOUTH STAR MINE.—The steam hoisting works were started up on Saturday afternoon, with appropriate ceremonies. We can only say, before our regular report of the "Mining Situation," that the machinery is working satisfactorily, and that the ledge is looking well.

PLACER COUNTY.

SOON AT WORK.—*Herald*, Jan. 21st: We learn that the Graves-Putnam mill, on Baltimore ravine, one mile from town, is almost completed and will be at work in a few days, as there is plenty water in the ditch to furnish the power. The ledge is known as the Marcellus.

INTERESTING CORNER.—There are some rich quartz ledges centering on Baltimore Ravine, nearly all of which are on patented lands. Two Companies working close together on the same ledge, or on ledges that cross each other, have taken leases from the owners of the land—one for three and the other for five years, each to pay five per cent. of the gross proceeds of the mines.

QUARTZ.—*Stars and Stripes*, Jan. 19th: Hon. M. H. Power, writes us from Damascus, Jan. 5th: "Messrs. Dovers, Linn and Brown have discovered a quartz ledge on the ridge, near the North Fork of the American river, one mile above the mouth of Humbug Canyon."

PLUMAS COUNTY.

SAWPIT FLAT.—*Quincy National*, Jan. 14th: The miners are patiently waiting for water, having filled their dump houses to their utmost capacity. We are informed that most of the pay dirt taken out during the summer has been rich.

GOVERNMENT PATENTS.—A number of the miners in this county are making arrangements to secure their titles.

STARTS WELL.—Messrs. Ray & Concklin started up their new mill at Argentine, this week, and everything worked smoothly. It will be some weeks before a clean-up can be made, but no doubt of the successful working of the rock is entertained.

RICH STRIKE.—For some time Blakesly, Braden & Co., have been running a prospecting tunnel in the old Deadwood claim on Emigrant Hill, near Elizabethtown. One day this week they struck pay gravel, and we are informed that from five pans of dirt they took out \$230. The crevice is a large one and promises to be extensive. The gold is all coarse—pieces weighing from one dollar to fourteen.

SAN DIEGO COUNTY.

FROM THE MINES.—*Union*, Jan. 12th: Mr. A. Pauly arrived from Julian and Banner Districts on Tuesday. The new "Banner" District, in San Felipe Cañon, is growing rapidly, and money is more plenty than it has ever been in Julian. Mining affairs in the Cañon look well for permanence. McMechan's "Pioneer Mill" has been moved there, and will be running in a few days. McKean, of the Warlock mine, has put up a wooden mill, run by horse power, and is netting \$100 per day. Eight or ten arastras are doing well. Parson's mill is running night and day on Van West ore. A clean up of Helvetia ore just made at that mill yielded 105 ounces gold from 84 tons.

SHASTA COUNTY.

FRENCH GULCH.—*Cor. of Courier*, Jan. 21: There are many good paying claims here, but no water to work with. Quartz mining is depressed in a great measure from the same cause. The Washington Co. have been compelled to hang up ten stamps, and have barely enough to run the remaining twelve. The mine shows better prospects than at any previous period. The ledge is large, and the quartz rich. But two men are at work on the Highland at present.

SIERRA COUNTY.

ITEMS.—*Messenger*, Jan. 21st: The Chinamen have succeeded in mining out the ground, lately owned by A. J. McKinsey, on Durgan Flat, and it has proved rich. Work has been suspended on the Iowa

Claim, and will not be renewed until Spring. The prospects are that the business matters of the Independence mine may be soon arranged, so as to resume work. The parties who have purchased the Hog Canyon mine have been trying to open the trail for the purpose of commencing work, but have found the snow ten feet deep. We are warranted in saying that the Primrose mine is to be fully tested.

PORT WINE.—*Cor. of same*: The Monte Cristo boys are still digging away on rich gravel; the drawback is the decrease of water, but it is hoped that we shall soon be visited with a rain storm to give us water enough to wash up.

SOUTHWEST SIERRA.—*Camptonville cor. of Democrat*, Jan. 19th: At Weed's Point is a large body of mining ground worked by the Sailor Bros., and paying. Passing on to Oak Valley, we come to a small camp of about fifty miners, waiting for water. At Brandy City, P. S. Van Rensselaer owns a large amount of mining ground and is working to win. He was blasting the bank most of last summer. He has put off six blasts in all; the largest 175 kegs, and the smallest 50 kegs. The ground is considered rich. Messrs. Arnott, Pender, Jenkins & Co., have just washed some dirt taken from the bed-rock this last fall which paid handsomely. Mr. J. Jones has a claim that is considered good. At Grizzly Hill, are some good claims owned by Sharpe & Bro. and Selfridge & Co. They are ready to work as soon as water comes in. The next is Indian Valley. Here Sam Fisher and Sam Boustine have claims that are valuable. Corey & O'Roar of this place have purchased half an interest in the "Waxey Claims," owned by Baker & Landacre, which have paid well.

SISKIYOU COUNTY.

ITEMS.—*Yreka Journal*, Jan. 18th: Edgerton, Ketchum & Co., who have been making extensive preparations for mining this winter on Yreka Flats, getting tired of waiting for water, have determined on cutting a ditch to conduct water from Greenhorn Creek. The Steamboat claim, formerly owned by E. Steele, paid handsomely from two days last week, but as the weather turned cold and froze up their water, the miners were compelled to suspend. Scott River is still low, but the miners took out their apparatus in fear of a rise, and of course are unable to do anything at river mining. A man named Swan has found very rich prospects in a quartz lead on the opposite side of the river from the Dean claim.

TUOLUMNE COUNTY.

TUNNELING TABLE MOUNTAIN.—*Sonora Democrat*, Jan. 21st: We learn that a company from Monterey county has been formed for the purpose of mining in Table Mountain, near Mountain Brow, on Mormon Creek. They have already tunneled into the mountain two hundred and seventy-five feet and have struck pay dirt that gives encouragement to proceed. They intend running into the old Caldwell garden, where several good sized piles were taken out a number of years since. The name of the company is the San Jose Mining Company.

CONFIDENCE MILL.—The last six days' running produced \$13,000.

Nevada.

ELY DISTRICT.

BOWERY.—*Record*, Jan. 15th: This ledge is three-quarters of a mile from Pioche. Spear, Whitman and others have been working on it for several months, occasionally striking a rich pocket which would pay enough to keep on with the work. Finally they have struck the ledge, and are taking out No. 1 ore.

WASHINGTON.—This mine, owned by P. McCannon and others, has 25 Mormon teams hauling rock to Meadow Valley, to lie there until the Chicago mill is erected.

BULLION.—The shipments for the week ending Jan. 13th, through Wells, Fargo & Co., amount to \$31,666. The shipments from Elyville amount to \$16,280, making the total \$47,946 for the week.

EUREKA DISTRICT.

WINTER MINING.—*Sentinel*, Jan. 21st: During the summer it was thought that the winter would be too severe to work the mines in this district. From present indications, there will be no time during the winter when men will not work as well as in the summer. Some of the mines are now employing more men than ever. There need hereafter be no "waiting for spring." Mining is constantly done on the Champion and Buckeye with good results for the Eureka Consolidated Co. Their furnaces are running without intermission at the rate of about 40 tons per day, and they have continually increased the size of the dumps. The Jackson Co. are raising much more ore than can be smelted in the two furnaces. The Buttercup Co. furnaces are

running on ore of their Mountain Boy and the Wide West, of Loucks & Co. The Wilson, Robertson & Co. furnace has been started within two weeks, and was set to work as soon as completed. During the very coldest weather of December, work progressed, and the best results are being obtained from the Badger ore, which is furnished by four men as fast as needed to make three tons of bullion per day. The Ogden, Dunne & Co. furnace and separating works have been almost entirely built during the winter, and are now in full operation, making bullion and separating it, so that from the ore they turn out pure silver bars.

OGDEN, DUNNE & Co.—The smelting and separating works of this Co. are described at length in the *Sentinel*. The arrangements are pronounced perfect in every respect. The whole cost was \$40,000. In a few days another furnace will be commenced, which will be capable of reducing 25 to 30 tons daily.

PHOENIX.—This Co.'s mines, the Adams & Farren, the Deep, Empire and Lexington, are being rapidly worked. In 19 days a tunnel of 85 feet was run into the Adams & Farren, striking the ledge in very fine ore. The tunnel in the Deep has been run about the same distance in the same time, but will not be in ore for some days. The Adams & Farren is one of the most promising in the district, and the Co. could now sell the ore they have out for enough to cover all expenses.

MINERAL HILL.—A correspondent of the *Elko Independent*, Jan. 21st, says: A vast quantity of rich rock is lying at the Manhattan mill awaiting crushing. The mill is turning out over \$2,000 in bullion every day, and cannot begin to do the work needed. More mills are wanted immediately.

ROSLIN SMELTING WORKS.—These are producing very fine bullion in large quantities. They are making three tons per day.

HUMBOLDT.

CENTRAL DISTRICT.—*Silver State*, Jan. 21st:—This district now promises to be one of the first. The "Silver" ledge, owned by King and Jemison, prospects admirably. Pay rock was found at the surface, realising \$200 per ton. The Silver State ledge, owned by King, Jemison and Gilbert, has been uncovered 60 feet, and develops a regular vein, averaging two feet in width. They have made three shipments, and received, net, \$272 to the ton. The Monarch, owned by same parties, is three feet in width and gives from \$40 to \$300 per ton. The Railroad, owned by Frank and Cyrus Clark, shows itself to be a mammoth ledge of ten feet, with myriads of tons of good ore in sight. The Galena, located by Mrs. Frank Clark, is a fissure vein of six feet in width, uncovered 100 feet, and showing tons of good shipping ore. Numerous assays give over \$100 to the ton. The Mul-len has already acquired a reputation. From eleven tons of the rock the owner received \$1,718, or over \$160 to the ton, from San Francisco.

WASHOE.

SAVAGE.—*Enterprise*, 22d: From this mine 190 tons of ore are extracted per day. About 40 tons are from the sixth station, hoisted out through the Hale & Norcross shaft. Two winzes have been sunk in the ore body on the sixth level to the depth of 32 feet below the track floor, and it has been found that the ore does not extend below that point.

CROWN POINT.—This mine is looking well. On the 1,100-foot level they have raised on the new ore body 56 feet, where it is four or five feet in width, all in good ore. On the 1,100-foot level a drift is being run to cut the new body upon which they are now working upward. A new station is being opened at the 1,200-foot level. The old mine—old upper levels—is yielding about as usual.

CHOLLAR-POTOSI.—The affairs of this company move on swimmingly. During the past week 2,000 tons of ore have been extracted, 1,540 of which was sent to the mills—average assays \$70.20. The mine yielded during the past month, clear of all expenses, \$321,000, by far the largest clear yield ever made in one month by any mine on the Comstock lode.

OPHIR.—Work is vigorously prosecuted in the "up-rise" from the south drift to tap the ore body supposed to extend down from the old 9th level in the neighborhood of the Central mine.

VIRGINIA CONSOLIDATED.—Nothing was found in the west drift, and they are now concentrating their force upon the branch drift to the northwest, in the direction of the Central mine.

SIERRA NEVADA.—The Sierra Nevada and Sacramento and Meredith have been incorporated into one mine under the name of the Sierra Nevada. The old Sierra

Nevada is yielding as usual, and the mill is in constant operation; the Berry and Evans mill is also running upon ore from this mine. The Sacramento and Meredith mill is being put in order, and will start up about the 5th of next month.

BUCKEYE.—This mine in Devil's Gate District, is yielding a large amount of good ore. The Sherman mill is crushing ore from the mine and they have large amount in their dumps. They have leased the Franklin mill on Carson River, and it will start up in three or four days.

YELLOW JACKET.—The mine is yielding 170 tons per day principally from between the 900 and 1,000-foot levels. The drifts north at the 1,000 and 1,100-foot levels, are still driven under contract, but have encountered no ore as yet.

BELECHER.—About all that can be said at present is that at the bottom of the winze sunk upon the 335-foot level the ore appears to improve both in quantity and quality.

HALE AND NORCROSS.—They are opening out on the eight level where the orebreasts look well. The yield of the mine is 216 tons per day, 30 of which comes from the old mine.

IMPERIAL-EMPIRE.—To-morrow they will commence sinking for a new level. From the old Imperial they are taking out sixty tons of ore per day.

GOULD AND CURRY.—About the usual quantity and quality of ore extracted.

DANEY.—The drift from the bottom of the main shaft had yesterday penetrated toward the lead 36 feet. The rock continues quite hard.

SUTRO TUNNEL.—The Sutro Tunnel was yesterday in 1,790 feet. The ground was quite hard for a few days, but is now improving.

OVERMAN.—The affairs are in statu quo. Same amount of ore coming out as usual.

KENTUCK.—The only new thing is the \$10 assessment, aggregating \$20,000, lately levied.

WHITE PINE.

REVIEW.—*News*, Jan. 21st: The regular annual rush is this year to Salt Lake and Pioche. The few White Pines who join it can be spared. Most of the workmen know better than to leave what will be steady employment for all summer or longer. All agree that the prospects for a good season on Treasure Hill were never better. Outside districts, too, show increased activity.

ITEMS.—On the Ward Beecher, there are five working shafts which lead to four large chambers—the bottoms of which are all connected by one drift. In fact, this drift runs through the whole mine, connecting it with the North Aurora. The drift has now reached a length of 300 feet, in excellent ore all the way. The cross-cut from the Ward Beecher to the North Aurora is 94 feet long, and is being carried on further to the eastward in good ore. The four chambers in the Beecher are nearly filled up with ore, for which there is no room on the dumps, and which will be sent to the new mill as soon as the tramway is finished. About 30 tons of ore are sent daily to the Oasis mill from the Beecher. This yields an average of \$150 per ton. Eberhardt—Twelve men are working, six of whom are breaking down ore, of which there is 1,500 tons lying at the mine waiting for transportation. Four men are sinking a new working shaft, now down 43 feet. South Aurora—enough ore is taking out daily to keep the Stanford mill running. A force is clearing the ground for the new orehouse and tramway station. Pocotillo—has been sold during the week for \$25,000. Work will be started to-day. Posthole has plenty of low-grade ore in sight. Still sinking in their deep shaft, which has reached a depth of 130 feet. Summit—has shaft down 80 feet, with good indications at the bottom. Has plenty of low grade ore on top. Iceberg—is down 50 feet, and has taken out some first-class ore during the week. Bourbon—is worked under a lease. Three men are drifting to the eastward. The shaft is down 25 feet. The drift is being run on very fine ore. Genesee—is working in large tunnel with 16 men, and taking out fair ore. Noonday—continues sinking shaft, but nothing new developed. Sierra Pascoe—working five men, shaft down 30 feet, drifting on good ore. Hemlock—part of the mine is worked under a lease, and some splendid rock has been taken out. Some of it will go \$1,000 per ton. Silver Wedge—has recently struck a body of fine ore. Virginia—is only working three men. Still sending ore to the Smoky mill. Emerald Isle—has run a tunnel 140 feet in length and struck first class ore. They have not got through it yet, proving the deposit to be extensive. Original Hidden Treasure—contracts have been let to deepen the shaft and put the mine gener-

ally in proper shape. Six tons Mazeppa ore worked, the first quality \$232 per ton, the second \$90.

Idaho.

ITEMS.—*Avalanche*, Jan. 14th: A force of six men are at work in the Skookum mine. Mickey & Co. are working the Empire and getting out fine-looking ore. Hank Townsend & Co. are taking ore from the Morning Star above the water level. They own one-third of the mine. During 1870 the Golden Chariot paid dividends to the amount of \$75,000. Two mills, the Ida Elmore and Owyhee, are constantly running on Chariot ore. The Fairview quartz mill is now running on ore from the old slopes of the Chariot. The mill works in the most satisfactory manner.

Montana.

BEARTOWN.—*Deer Lodge Independent*, Jan. 14th: We learn that there are as many claims worked in Bear Gulch this winter as last, and the yield promises to be equal to that of 1869-70. It seems that ground not supposed to contain gold is paying well, and bids fair to do so for at least two years.

MINERS' DITCH.—This is nearly completed, only 15 men being now employed on it. Col. Thornton has a force building a large reservoir at the head of Race Track ditch. A large number of men are prospecting in the gulches, hills and bars from Race Track to Lost Creek.

WEATHER.—*New North West*, Jan. 13th: With the snow fall we have had in the past few days, and an average yet to come, there is general confidence that '71 will be a favorable mining year.

CABLE CITY.—*Helena Gazette*, 16th: Messrs. Con Kohrs, Valiton & Hayes have commenced the digging of a seven mile ditch, with a capacity of 400 inches. They will have it completed by the first of May.

INDIAN CREEK.—*Montanian*, Jan. 12th: The Pittsburg mill is finished, and was started up; they found it impossible during the cold weather to run. There are several hundred tons of rock on the dump, and work is vigorously prosecuted on the lode. Keating & Blacker, at Radersburg, are cleaning up large amounts of amalgam each week. Since the improvements on their mill it works splendidly. The lode is looking better every day. The Sample mill has been closed for repairs. The Iron-Clad lode has proven itself one of the first in the Territory. Nave & Co. are running their mill regularly.

SILVER STAR.—Porter, Wiant & Lehmer on the Clipper lode, are meeting with most encouraging results. Mr. Porter brought up for shipment 113½ ounces of retort, extracted from twenty tons of ore, by arrastra. They have 100 tons at the shaft that will yield five to six ounces per ton, worth \$15 per ounce.

CARSON CREEK.—The Georgetown correspondent of the *Helena Herald*, Jan. 19th, says: The camp is at a stand still, most of the ground below the wet ditch being worked out. There is plenty of good ground above, waiting for a season that will supply the ditch with water. The recent rain and thaw raised the water so as to put back for six weeks, work on the great drain race which is to redeem the camp. The drain is 2,500 feet long, with a face of 15 or 16. The boys are sanguine of realizing their stake here.

New Mexico.

RALEIGH.—The Las Cruces cor. of the Santa Fé Post says returns have been received from ore sent to Newark, N. J. and New York, showing yields, the lowest of which was eighty-six dollars, and the average two thousand two hundred and eighty-two dollars per ton.

The Artesian Well Co. are sinking wells at the new placers twenty-five miles below Santa Fe, and have struck water at the depth of eighty feet.

Utah.

SILVEROPOLIS ORE.—*Salt Lake Herald*, Jan. 18th: Walker Bros. have placed at our disposal the following statement of returns from four ear loads of Silveropolis ore. One ear load shipped to Reno, and the bars sent to New York, realized in currency, net, \$6,909.36. One shipped to San Francisco, and sold there, netted \$5,935.30 in currency. One shipped to Reno, and the bars sent to New York, \$7,724.74. One sent to San Francisco netting \$2,950. This is a total of \$23,522.40 for the four ear loads; the cost of working the ores being \$4,289.26; leaving a net profit of \$19,233.14 on 40 tons of ore.

EMMA.—A Salt Lake cor. of the *White Pine News*, of Jan. 20th, says: It is rumored on the street to-day that the Emma mine has been sold to W. M. Lent, of San Francisco, for fourteen hundred thousand dollars.

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Jan. 26.

The line of the market has been quite fair on the whole, although weak at times and with some variations. Quite a noticeable fact was that all the leading descriptions (17 in number) closed exactly the same on this and on yesterday morning. The annual meeting of the Metropolitan Mill and Mining Company was held on the 23rd, when the following Trustees were elected: Alpheus Bull (President), G. W. Clark, J. Hahn, J. C. Collins and T. A. Olivan—Secretary, J. T. Milliken. The Secretary's report shows that the receipts for the year 1870 were \$103,951; total expenditures, \$106,259, including \$2,830 for reduction in value of materials and supplies on hand at commencement of year, and also including \$7,257 for cost of ore now on hand but paid for in 1870, but exclusive of \$10,000 paid in dividends. The quantity of ore worked was 6,984 tons. The average yield to the Company of the ore worked, including all ores purchased, mined and worked for customers, was \$14.88. The average cost for working the same, including all expenses at the mill and at San Francisco, was \$14.17 per ton.

The following table gives last Thursday's quotations and the highest and lowest points since reached by the several descriptions of stock.

	Jan. 10.	Highest.	Lowest.
Alpha.....	\$4	5	4
Belcher.....	11	11	10
Chollar-Potosi.....	69	70	66
Crown Point.....	30	32	23
Eureka Consolidated.....	16	16	9
Golden Chariot.....	78	82	75
Gould and Curry.....	47	60	45
Hale and Norcross.....	100	106	99
Ida Elmore.....	10	10	9
Imperial.....	14	14	10
Kentuck.....	33	33	31
Meadow Valley.....	32	33	31
Ophir.....	5	5	4
Original Hidden Treasure.....	3	4	3
Overman.....	6	6	4
Savage.....	46	63	45
Sierra Nevada.....	18	18	13
Yellow Jacket.....	40	41	37

We condense, from the *Bulletin*, the following interesting table of highest and lowest prices of several of the principal mining securities during the year 1870. Most of the descriptions were the highest during the first four months of the year.

	Highest.	Lowest.
Alpha.....	21	3
Amador.....	370	182
Belcher.....	35	1
Chollar.....	91	18
Crown Point.....	28	2
Gould and Curry.....	500	37
Hale and Norcross.....	83	11
Imperial.....	61	11
Kentuck.....	146	24
Occidental.....	19	56
Ophir.....	27	2
Overman.....	26	3
Savage.....	65	26
Sierra Nevada.....	21	6
Yellow Jacket.....	64	24

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

	BID, ASKED.	Ida Elmore.....	BID, ASKED.
Alpha Cons.....	4 3/4	Imperial.....	11 1/2
Amador.....	310	Kentuck.....	—
Belcher.....	8 3/4	Occidental.....	4
Chollar-Potosi.....	66 6/6	Ophir.....	4 3/4
Crown Point.....	27 1/2	Orig. Hid. Treas.....	3 3/4
Daney.....	—	Overman.....	4 3/4
Empire Mill.....	72	Savage.....	61 1/2
Eureka.....	73	Silver Wedge.....	3 3/4
Golden Chariot.....	78	Sierra Nevada.....	—
Gould & Curry.....	47 3/4	Yellow ket.....	41 1/2
Hale-Norcross.....	104 1/5		

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENCY	DAY OF SALE.
Alhambra, Sierra Co., Dec. 27, 60c.	Jan. 27—Feb. 13*	
Altamir, Y. Dec. 2, 50c.	Jan. 27—Feb. 13*	
Argenta, Nevada, Dec. 17, 50c.	Jan. 19—Feb. 17	
Belcher, G. H., Dec. 2, \$1.	Jan. 6—Jan. 24	
Cherokee Flat, Butte Co., Dec. 8, \$5.	Jan. 9—Jan. 27	
Cons. Virginia, Nevada, Dec. 9, \$1.50.	Jan. 14—Feb. 4	
Continental, W. P., Dec. 31, \$1.	Feb. 6—Feb. 22*	
Daney, Nevada, Jan. 10, \$1.50.	Feb. 14—Mar. 4	
Deep Spring, Nevada, Jan. 12, \$1.	Feb. 25—Mar. 4*	
El Refugio, Santa Cruz Co., Jan. 18, 65c.	Feb. 21—Mar. 11*	
Kentuck, G. H., Jan. 17, \$17, \$10.	Feb. 20—Mar. 11*	
Jennie A. Con., Dec. 31, 10c.	Feb. 6—Feb. 27*	
Kinead Flat, Tuol. Co., Jan. 12, \$2.50.	Feb. 16—Mar. 4	
L. X. L. Alpine Co., Oct. 18, \$1.	Jan. 31*	
Maxwell, Amador Co., Dec. 21, \$2.	Feb. 7—Mar. 7	
Meadow Valley Exp., Nev. Dec. 21, 60c.	Jan. 22—Feb. 13	
Nevada Nevada, Jan. 19, 25c.	Feb. 20—Mar. 13*	
Noonday, Nevada, Jan. 19, 25c.	Feb. 23—Mar. 17*	
North Bloomfield, Nevada Co., Dec. 10, \$2 Jan. 12—Jan. 29		
Ophir, Virginia City, Dec. 11, \$2.	Feb. 14—Mar. 7	
Overman, G. H., Dec. 8, \$50.	Jan. 11—Jan. 30	
Placer, Placer Co., Jan. 4, \$5.50.	Feb. 15—Mar. 15*	
Provident, Nevada, Dec. 19, 25c.	Feb. 20—Mar. 13*	
Sag. Belcher, G. H., Jan. 14, \$2.	Feb. 16—Mar. 8	
Silver Wedge, W. P., Dec. 10, \$1.50.	Jan. 11—Feb. 8	
St. Patrick, Placer Co., Dec. 27, \$1.	Feb. 1—Feb. 20*	
Virginia, W. P., Dec. 17, 50c.	Jan. 23—Feb. 14	
Washington, Mariposa Co., Dec. 12, \$3.	Jan. 16—Feb. 6*	
Wheeler, Nevada, Dec. 13, 50c.	Jan. 13, Jan. 30	

Belcher.....Annual Meeting, Jan. 34
Cherokee Flat Blue Gravel.....Annual Meeting, Feb. 1
Latawans.....Annual Meeting, Jan. 31
LATEST DIVIDENDS—(Within Three Months)
Black Diamond, 5c per ct.....Payable Jan. 7
Chollar-Potosi, 5c.....Payable Jan. 10
Chollar-Potosi, 5c.....Payable Jan. 16
Eureka, div. \$10.....Payable Jan. 5
Golden Chariot, div. \$14.....Payable Jan. 10
Hale & Norcross, div. \$5.....Payable Dec. 10
Meadow Valley, \$1.....Payable Jan. 9
North Star, \$1.50.....Payable Jan. 10
Sierra Nevada, div. \$1.....Payable Jan. 15
Yellow Jacket, div. \$1.....Payable Jan. 10
—Advertised in this journal

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, Jan. 26.
Shipments to the east still continue large, and several tanners have advanced their price one cent per lb.
City Tanned.....26 @ 29
Santa Cruz.....26 @ 31
Country.....25 @ 28
CALF AND KIP SKINS.—French stocks continue scarce and high on account of the lack of exportation from French ports which has almost entirely ceased. We quote:
Best French Calf Skins, 3 doz.....75 00 @ 100 00
Common French Calf Skins, 3 doz.....35 00 @ 75 00
French Kips, 3 doz.....1 00 @ 1 30
California Kip, 3 doz.....60 00 @ 80 00
California Calf, 3 doz.....1 00 @ 1 25
Eastern Wheel United Calf, 3 doz.....80 @ 1 00
Eastern Bench Stuffed Calf, 3 doz.....1 10 @ 1 25
Eastern Calf for Tacks, per lb.....1 15 @ 1 25
Sheep Roams for boots, all colors, 3 doz.....8 50 @ 13 00
Sheep Roams for linings, 3 doz.....5 50 @ 10 50
California Russet Sheep Linings.....1 75 @ 6 50
HAINES LEATHER, 3 doz.....30 @ 37
Bridle, 3 doz.....33 @ 40
Skiing, 3 doz.....4 50 @ 4 75
Wet Leather, 3 doz.....50 00 @ 60 00
Buff Leather, 3 foot.....22 @ 26

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

	FRIDAY, Jan. 27, 1871.
IRON.—Duty: Pig, \$7 per ton; Railroad, 60c @ 100 lbs.; Bar, 1 1/2 @ 3 lb; Sheet, polished, 3c @ lb; common, 1 3/4 @ 3 lb; Plate, 1 1/2 @ 3 lb; Pig, 1 1/2 @ 3 lb; Galvanized, 2 1/2 @ 3 lb.	
Scotch and Eng. Pig Iron, 34 tons.....@ \$35 50	
White Pig, 34 tons.....32 @ 33 00	
Refined Bar, bad assortment, 3 lb.....03 @ —	
Refined Bar, good assortment, 3 lb.....04 @ —	
Boiler No. 1 to 4.....— 04 1/2 @ —	
Plate, No. 5 to 9.....— 04 1/2 @ —	
Sheet, No. 10 to 13.....— 04 1/2 @ —	
Sheet, No. 14 to 20.....— 05 @ —	
Sheet, No. 24 to 27.....— 05 @ —	
COPPER.—Duty: Sheathing, 3 1/2 @ 3 lb; Pig and Bar, 2 1/2 @ 3 lb.	
Sheathing, 3 lb.....— @ — 26	
Sheathing, Yellow.....— @ — 21	
Sheathing, Old Yellow.....— @ — 21	
Composition Nails.....— @ — 22	
Composition Bolts.....— @ — 22	
TR PLATES.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, 1X, 3 lb box.....12 00 @ —	
Plates, I C Charcoal.....10 00 @ — 50	
Roofing Plates.....10 00 @ — 60	
Banca Tin, Slabs, 3 lb.....— @ — 42	
STEEL.—English Cast Steel, 3 lb.....— @ — 15	
QUICKSILVER.—3 lb.....— @ — 90	
LEAD.—Pig, 3 lb.....— @ — 7	
Sheet.....— @ — 9	
Pipe.....— @ — 10	
Bar.....— @ — 8	
ZINC.—Sheets, 3 lb.....— @ — 11	
BORAX.....— @ — 35	

San Francisco Market Rates.

Wholesale Prices.

	FRIDAY, January 27, 1871
Sugar, crushed, 3 lb.....14 1/2 @ 15	
Tea, Hawaiian, 3 lb.....9 @ 12	
Coffee, Costa Rica, 3 lb.....9 @ 12	
Do. Rio.....— @ 13 1/2	
Tea, Japan, 3 lb.....65 @ 1 00	
Do. Sen.....60 @ 1 00	
Hawaiian Rice, 3 lb.....8 @ 9	
China Rice, 3 lb.....8 @ 9	
Coal Oil, 3 gallon.....45 @ 60	
Crabapples, 3 lb.....30 @ 35	
Overland Butter.....30 @ 35	
Sancho Butter, 3 lb.....40 @ 50	
Isthmus Butter, 3 lb.....25 @ 30	
Cheese, California, 3 lb.....9 @ 15	
Eggs, 3 dozen.....2 @ 32 1/2	
Lard, 3 lb.....11 1/2 @ 13 1/2	
Ham and Bacon, 3 lb.....81 @ 17	
Shoulders, 3 lb.....9 @ 10	

Retail Prices.

Butter, California, fresh, 3 lb.....50 @ 60	
do. pickled, 3 lb.....40 @ 50	
do. Oregon, 3 lb.....40 @ 50	
Cheese, 3 lb.....20 @ 25	
Honey, 3 lb.....25 @ 30	
Eggs, 3 dozen.....50 @ 60	
Lard, 3 lb.....18 @ 25	
Ham and Bacon, 3 lb.....22 @ 25	
Crabapples, 3 gallon.....75 @ 1 00	
Potatoes, 3 lb.....2 @ 3	
Potatoes, Sweet, 3 lb.....2 @ 3	
Tomatoes, 3 lb.....2 @ 3	
Onions, 3 lb.....2 @ 3	
Apples, 3 lb.....4 @ 5	
Pears, Table, 3 lb.....5 @ 6	
Plums, dried, 3 lb.....10 @ 12	
Peaches, dried, 3 lb.....10 @ 15	
Oranges, 3 dozen.....50 @ 75	
Lemons, 3 dozen.....50 @ 75	
Chickens, apiece.....75 @ 1 00	
Turkeys, 3 lb.....10 @ 15	
Soap, Fale and Co.....18 @ 25	
Soap, Castile, 3 lb.....18 @ 25	

The mining share market opened weak, on last Friday, but on Saturday there was a reaction, and very considerable excitement on account of the rapid advance of Crown Point, which sold heavily up to \$40. This week, the market was at first quite firm, but grew weak again on Wednesday, through a collapse in Belcher and Crown Point. The following table gives last Thursday's quotations and the highest and lowest points since reached by the several descriptions of stock.

THE SCIENTIFIC PRESS.—An illustrated journal of Scientific and Industrial Progress. Devoted to Mining and Mechanic Arts. San Francisco: Dewey & Co., Publishers.

We are in regular receipt of this handsome and valuable weekly, and always receive it with pleasure. It is able edited in all its departments, and is well worth the liberal patronage it is evidently receiving. It embraces a large range of subjects, and being profusely illustrated, may be regarded as a model paper of its class. Terms, \$4 a year.—*Jour. of the Farm.*

THE SCIENTIFIC PRESS deserves the support of all Californians, for there is nothing that transpires in connection with Mining, Farming or Mechanics, interesting and valuable to the people of this coast but finds a place in its columns. As the scientific articles are all illustrated, the readers the more readily understand the various subjects which are therein treated. A subscription of \$4 per annum, will ensure it by mail weekly; address DEWEY & CO., San Francisco.—*Val. Chron.*

A. B. BOWEN, of this paper is making a short trip in the vicinity of Sonoma, and will be glad to receive subscriptions and receipt for dues, to either the SCIENTIFIC or RURAL PRESS.

INDUSTRIAL MISCELLANY.

Colonization Movements.

The idea of a rapid settling up of the large territorial area bordering upon and within the great Rocky Mountain range, by a system of colonization, is being quite actively discussed by writers and political economists on both sides of the Atlantic. The wonderful success which has attended the "Greeley Colony," where a large town, with substantial blocks of buildings, beautiful avenues, ornamented with trees, and fountains, public edifices, etc., has grown up, as by magic, in a single season, is operating as a wonderful stimulus in this direction.

The "lust for gold" which, for the last 20 years, has been the stimulating medium for attracting settlers to the Rocky Mountain and Pacific Slopes, enters but very little, if at all, into this new movement. The aim is to build up permanent settlements upon an agricultural and manufacturing basis. Farmers, who more than any other class of population, form the bone and sinew of a country, are ever slow to change the advantages of convenient markets, schools, churches and home surroundings, which they enjoy in old settled localities, for a pioneer life in the midst of desert wastes, however beautiful and productive those wastes may be made by the hand of industry.

But the success of the Greeley Colony has shown them that they can carry all these home advantages with them; if they will only go in large bodies, and settle upon contiguous lands. They can carry their markets with them, by taking along a due proportion of mechanics, who will establish home manufactures for the chief necessities of a mixed community. Willing and earnest hands can soon hew out the materials for dwellings, churches and school houses; and a town may be built up in a few months which shall have all the essential elements of comfort and success which surround the most flourishing of pioneer towns anywhere. The city of a year which has thus grown up on the Cache la Poudre is a living proof of what we write.

And there are hundreds, indeed we may say thousands of localities, equally eligible within the broad domain extending westward from Kansas, northward to British America, and southward to Mexico—a territory embracing an area more than half as large as Europe, and capable of sustaining a population twice as great as the present total of the entire Union.

The overcrowded centers of Europe are just beginning to realize the opportunities here presented; and, through the agency of properly organized colonization agencies, we may soon expect to witness an influx of population from that quarter, far in excess of anything yet witnessed in the annals of emigration. California should be up and doing in view of this great movement of labor and capital, and so direct a portion of the stream, that the Western Slope of the Sierras shall receive at least a moiety of the benefits so intimately connected with the public weal, and so fraught with material benefit to the people, individually and at large.

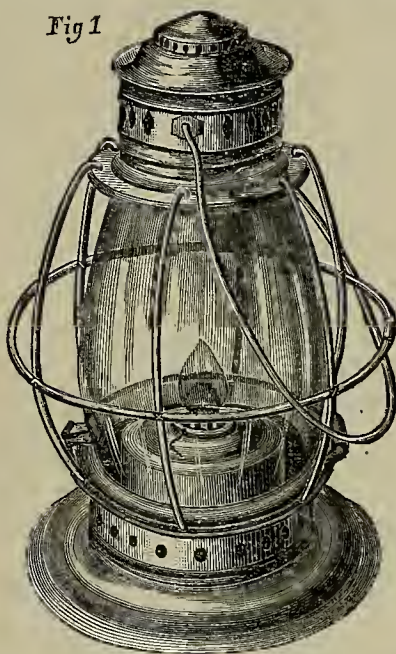
CALIFORNIA FRUITS IN WASHINGTON.—We clip the following from the Washington correspondence of the *Sacramento Union*:—Senator Casserly has received, in good condition, olives and oranges on the branch, and fresh figs and almonds from California. Bidwell, the son-in-law of Superintendent Kennedy, also supplied his family with luxuries from California. These arrivals of good things established a cordial relation on Christmas between the Pacific coast and the East and made us feel at the seat of government that our future confectioneries will be derived from the American Paris on the slopes of the Pacific.

Hughes' Patent Lantern.

Had Diogenes been provided with the lantern here illustrated he might possibly have had less difficulty in his search after a wise man; for, in justice to those ancient times, we may be allowed to hope that the chief trouble in the discovery of such a man arose not from the great scarcity of the article, but rather from the want of sufficient length in the part of the searches.

Mr. Hughes could have presented Mr. Diogenes with a good light-producer. We should like to have seen him recommending it to the old philosopher, as "strong, durable, easily kept in perfect order, and much better than that thing in your hand or any other now in use. Will be great economy for you to purchase, for it not only will outwear a dozen of the kind you

Fig 1



HUGHES' PATENT LANTERN.

now have, but will give so strong a light that you'll find ten large men of the sort you're after in less time than it now takes to find one small one.

"You see how the wire frame carries and protects the glass, so that it can't be bro-

ken. This wire frame is hinged to the base, in this way (Fig 4). Now we can easily take out the glass, clean it, and then replace it by reversing the movement of the frame until it rests upright on the base, and is held by the spring on the side of the base opposite the hinge, this spring being so arranged with a pawl, so that it cannot retract by accident.

"The two eyes provided, one on each side of the cylindrical top of the lantern, to receive the hooked ends of the bail, are strengthened by the addition of a strip of metal (Figs. 2 and 3), so that they can't be torn open. The strip is inserted through slits and its ends overlap; and the hole is then drilled through the whole four thickness, so that the durability is very great.

"The whole affair is solidly built, and every precaution has been taken to make it a splendid thing. You can't find another in which the glass can be so easily removed and cleaned, where the upper part is so securely retained on the lower part, the affixing of the bail is so durable and efficient, the—

and weave it in hand looms, into vest patterns, etc., but have no experience in preparing it for market."

VEGETABLE PRECOCITY.—A gentleman who called at this office, a few days since, to place upon our subscription books the name of a friend, informed us that he planted in a flower pot, early last spring, an orange seed which in due time sprouted and came up. During the summer, he took the young tree, still in the pot, to the ranch of a friend in Sonoma, where it has recently put forth a well developed blossom—in less than one year from the seed!

DRIED FRUIT.—Mr. Victor Portroon, of the Esperanza Ranch, says the *Calaveras Chronicle*, has shipped to San Francisco, this fall, 1,500 pounds of dried figs of a superior quality, which brought from 15 to 18 cents per pound. Also two tons of dried plums, which sold readily for 20 cents—all raised by himself. This result shows what a little energy may do, in utilizing the surplus products of our orchards and small fruit nurseries.

"What, you can't afford it. Well, take this one on tick, and when you're in funds send me on the money. Recommend the lantern to your friends and, at the earliest moment, address your letter to John Hughes, Box 90, Buchanan Post Office, Pa."

OPIMUM CULTURE.—The *San José Independent* copies our articles on Opium Culture, and calls the special attention of its readers to the value thereof, as one of the many new crops to which our farmers should resort in their endeavors to introduce greater variety into the products of their fields.

SILK CULTURE AND HOME MANUFACTURE IN NORTH CAROLINA.—A New York gentleman who proposes to go into the silk business extensively in Buncombe County, N. C., writes us for some special information

Fig 2



Fig 3

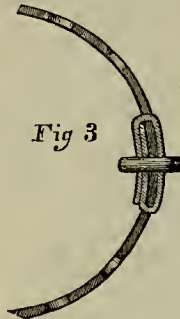
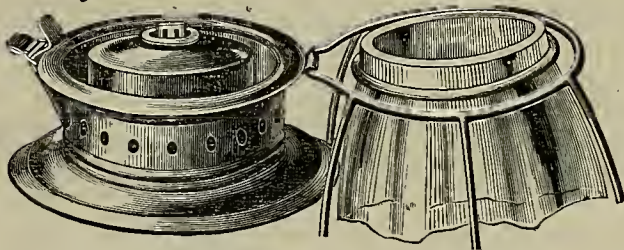


Fig 4



California Agricultural Notes.

SHADE TREES.—The Santa Clara Agricultural Society advertises for sealed proposals for furnishing 400 trees for its fair grounds—100 each of locust, Monterey cypress, South Carolina poplars and Australian blue gums.

BLOODED STOCK.—The *Solano Republican* of Jan. 19th says: Five head of Durham cows came up on the Amelia on Tuesday night. They belong to Lewis Peirce, and were recently imported from England.

SALINAS VALLEY is about eighty miles long, with an average of seven miles in width. The *Standard* estimates the area of agricultural land to be 550,000 acres. Some of it is very rich and wonderfully productive—140 bushels of barley having been produced to the acre in some places. The greater portion of the valley is owned in large grants, but the proprietors are beginning to sell off portions, as the best way to enhance the value of the balance. Probably one-fourth of that valley is under cultivation.

BARLEY IN CHICO.—Farmers near Chico are holding on to their barley, while the merchants of that place are receiving fifty or sixty tons daily from other points.

STRAWBERRIES IN JANUARY.—Fine ripe strawberries are selling in Los Angeles market at 50 cents per pound.

CATTLE AND SHEEP.—It is said that cattle stand the dry season and short feed much better than sheep; that while but very few cattle have died, the sheep suffer and perish in large numbers.

QUAILS IN IDAHO.—The Quail Association of Boise City, Idaho, are importing large quantities of these birds from Missouri and California, and turning them loose in the hills and valleys of that section.

OLIVE TREES IN PLACER COUNTY.—C. E. Carpenter is commencing to plant olive trees at Rattlesnake Bar—probably the first in the county. It is claimed that the climate and soil there is very favorable for the olive. The speculation will undoubtedly be highly remunerative.

FEEDING SHEEP.—The *Marysville Standard* gives the situation of sheep in that vicinity as follows: Sheep herders are compelled to feed their flocks considerable quantities of hay, which, at \$20 per ton, is expensive. We have heard it stated that the loss from cold and lack of usual grazing will amount to 20 per cent., or equal the natural increase for the season.

Eastern Agricultural Notes.

UTILIZING VINE PRUNINGS.—Some of our Eastern grape-growers are utilizing the new wood prunings of the vine for wine and vinegar manufacture. After being cut small they are bruised and put into a vat or mashing tub, and boiling water poured on them, in the same way as done with malt. One of the experimenters says that they produce liquor of a fine vinous quality, which on being fermented, makes a very fine beverage, either mild or strong, as you please, and on being distilled, produces an excellent spirit of the nature of brandy. In the course of his experiments he found that the fermented liquor from the pruning, particularly the tendrils, when allowed to pass the vinous acid to run into the acetous fermentation makes uncommonly fine vinegar.

A **LOWELL** man has built a heavy large enough to accommodate 3,000 hens.

The refuse potato pomace from starch factories is now to be made into paper.

ILLINOIS and **IOWA** stand at the head of the wheat-growing States.

A **PROFITABLE ORCHARD.**—The Mendenhall orchard, of 66 acres, in Richland County, Ill., returned as the net proceeds of its last year's crop \$8,312.

THE CATTLE SUPPLY.—Of the 355,277 beef cattle sent into the New York market last year, the State of Illinois furnished 204,131. Texas comes next in the list, being credited with 40,557.

ORDERS FOR BEET SUGAR.—We see it stated that orders for large amounts of beet sugar have been sent to the agent of the Alvarado Company in this city, from Oregon, Nevada, Idaho and other distant localities on this coast. Thus it appears that this new industry will be encouraged by the people, however much merchants and manufacturers may feel inclined to dispose of the foreign grown instead of the home grown as well as home made articles.

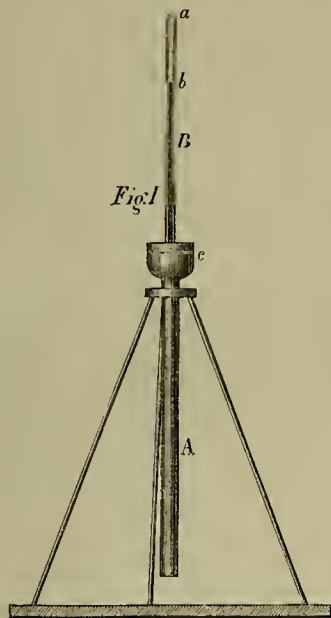
POPULAR LECTURES.

Vaporization and the Elastic Force of Steam.

[Prof. JOHN LECONTE before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the Press.]

LECT. II., Jan. 21. In the last lecture, said the professor, I stated that air was not the agent of evaporation, and that these two theories founded on the ideas that air was a solvent and that it was an absorbent of vapor, were erroneous. I showed, moreover, that in vacuum evaporation takes place instantaneously; that the vapor has a certain elastic force which we measure by the distance through which it depresses the mercury in our tube; and that an increase of temperature causes an increase of this force, although not in the same ratio. These points should be kept in mind to understand fully what is to be said this evening.

Now there is a certain density or elastic force beyond which a vapor cannot pass. In a given space, only a certain amount of vapor can be formed, this amount, it may be said, being dependent on the temperature. If we decrease this space, the temperature



remaining the same, part of the vapor is condensed back to liquid. We can show this by a simple experiment.

We have here a tripod (see Fig. I.) which holds a tube, A, which has a cup-shaped top and which is filled with mercury. This is a conveniently-formed mercury bath. Now we take a glass tube, just as in our former experiments, filled partly with mercury, close the end with the finger, invert and dip in the quicksilver bath as before. A certain amount of air is now in our tube, B, the mercury column sinking until its weight is equal to the pressure of the air on the bath. Now, if we sink our tube down in the mercury, the space above the column in the tube, *a b*, always remains the same. Thus, (see Fig. II.) the space, *a b*, in the position A, is just as large as the space, *a b*, in the position B, while the height of the mercury column has changed (*b c* and *b' c'*).

But now we take another glass tube, also partly filled with mercury, and add ether until it is quite full. Inverting as before and placing in our bath, the ether rises to the top, vaporizes, and fills the space, *a b*, Fig. III. A. Now, however, if we sink the tube, this space does not remain the same, but grows smaller, the lower down we press the tube, while the vapor condenses to liquid ether, until, pressing the tube way down, we have only liquid above as shown at B, Fig. III. The height of the mercury column has remained the same, however, in both cases, (*b c* and *b' c'*) showing that the pressure or elastic force has remained the same.

By the compression, then, of vapors, one comes to a limit beyond which their elastic force cannot increase, where any further

compression only results in a condensation. Vapors at this limit are said to have their maximum of elastic force, or maximum density. This gives us a characteristic and important difference between vapors and permanent gases. The air, in the experiment, was a permanent gas, while the ether gave out vapor. Our experiment likewise showed that the density, or elastic force of vapors remains the same, at the same temperature: for (Fig. III) the height of the mercury column (*b c* and *b' c'*) remained unchanged at all portions of our tube.

Vapors which have reached their maximum density are said to be saturated. The maximum density is increased by an increase of temperature.

Laws of Vapors in Vacuum.

From our experiments and others of a similar nature, we can deduce four laws:

1. Any liquid in a vacuum gives out vapor which instantly takes its maximum density.
2. The maximum density is not augmented by pressure nor decreased by rarefaction. Compression results only in liquefaction, but the elastic force is unchanged. By raising our tube the liquid vaporizes again, but we cannot get the mercury to rise any higher. If, however, we should separate from the fluid a space filled with its saturated vapor, and then increase this space, the vapor would still fill it completely; but it would then be no longer saturated, no longer have its maximum density, and would act under compression just like a permanent gas, until the point of saturation, maximum density, were again reached.
3. This maximum density varies with each liquid.
4. It depends on the temperature, increasing as this increases, but much more rapidly.

These laws give us two methods of reducing vapors to liquids:—by pressure and by cooling. Of 22 vapors which have been experimented on, 16 have been liquefied and 10 have been frozen by these methods.

Condensation by Cooling—Rain in Hot and Cold Countries.

The amount of vapor condensed by cooling depends not only on the number of degrees the temperature is reduced, but also on what part of the scale, whether high up or low down, this is done. For example, we find from our tables of figures (which the lecturer showed) that if we reduce the temperature from 90 degrees to 50 degrees, Fah., 10.721 grains of vapor of water are condensed; while if we reduce it an equal amount, but from 70 to 30 degrees, only 6.023 grains are condensed.

This fact explains why it is that a fall in temperature is accompanied by more rain in tropical than in colder countries. The higher the degree at which the reduction is made, the more vapor is condensed.

Modifications of Evaporation.

Dalton propounded two laws which, although not exactly correct in all the details, yet contain the germs of truth. These are as follows:

1. The elastic force and the amount of vapor formed in a given space at a given temperature are the same whether the space is filled with air or other gas, or vapor, or is a vacuum.
2. Each vapor rising in a given space adds its elastic force to that of any vapor or vapors already there, and to just as great an extent as if it were a vacuum.

If we had water under this inverted tumbler, its vapor would in time fill the enclosed space above the water, attaining its maximum density. If we then added alcohol, this also would evaporate, till the vapor attained its maximum density, and then stop. So we might then add ether, with the same result, and so on. If the space now were a vacuum, the vapor would attain its maximum density instantly, but if air or other vapor is present, it takes a longer time. The evaporation of one liquid doesn't interfere with that of another in amount, but only in the rapidity of action.

For example, if a space were filled with aqueous vapor, at 50 degs. of temperature, the elastic force would be equal to 0.36 in. of mercury; if we had alcohol, its vapor would have an elastic force of 0.95 in.; if sulphuric acid, it would be 7.85 in.; if ether, 11.28 in. If there were added, one after another, the total elastic force exercised would be the sum of these, viz:—0.36 + 0.95 + 7.85 + 11.28 = 20.44 in. of mercury.

Regnault has investigated these matters thoroughly, and finds that Dalton is right, if the different vapors exercise no chemical action on one another. But if they do exercise such action, the resultant elastic force is not the sum of the individual elastic forces, but is modified.

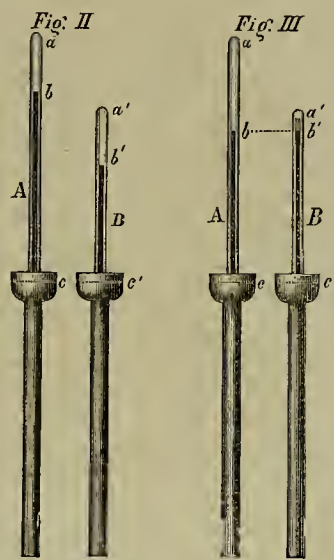
Atmospheric Vapor—Rate of Evaporation.

All the aqueous phenomena of the atmosphere,—rain, clouds, fog, frost, snow, etc.—depend on the aqueous vapor which is mingled with the air. Now if we had no atmosphere, what would be the result? The vapors would flash up instantly, attaining their maximum density, and then all evaporation would cease. But, as we have seen, air retards evaporation; and its movement, the air carrying off the vapor mixed with it, gives chance for more evaporation.

If the ocean were universal, covered all the globe, we would not have more rain, but probably less; for the land acts as a condensing apparatus, and thus causes the vapor to be constantly removed from the surface of the water, enabling more to form. If water were universal we should probably have only a gentle distillation, and constant fog in the polar regions.

The causes which influence the rate of evaporation may be reduced ultimately to five:

1. The extent of surface of the liquid. The rate is proportional to this.
2. The temperature of the liquid.
3. The elastic force of the vapor at the surface of the liquid. If such vapor is at its maximum density, no further evaporation can take place.
4. The wind, which removes the vapor present.



5. The pressure on the surface of the liquid. The rate is inversely proportional to this.

The following tables illustrate these. The first gives the rate of evaporation per minute, according to Dalton's experiments, with a circular surface of water, 6 inches in diameter, at different temperatures and with a calm, a breeze and a high wind.

Temp. Fah.	Elastic force, Inches Merc.	Calm grains	Breeze grains	High Wind grains
212°	30.000	120.00	154.00	188.00
85	1.255	4.92	6.49	8.04
75	0.595	2.65	3.48	4.32
65	0.657	2.62	3.37	4.12
55	0.476	1.80	2.43	2.95
45	0.340	1.36	1.75	2.13

Daniel's experiments with a circular surface, 2.7 inches in diameter, at 45° temp., during one-half hour, gave these results:

Pressure.	Evaporation.
30.4 inches mercury	1.24 grains
15.2 " "	2.57 " "
7.6 " "	5.68 " "
3.8 " "	9.12 " "

The rate of evaporation depends on all these points; and many mistakes have been made in trying to explain phenomena by one alone. Thus the fact that more rain falls in the northern than in the southern hemisphere, while there is more water in the southern than in the northern, has forced those who have supposed evaporation to depend only on the extent of surface, to get up many a wild theory, about the vapor being generated in one hemisphere and then carried far away and deposited in the other. But vapor doesn't wander many hundred miles from the place where it is generated.

Dew-Point—Humidity of Air.

If the vapor is not at its maximum density, it acts like air or other permanent gas, as stated above. If the aqueous vapor in the atmosphere were at its maximum density, a reduction of temperature would always condense it. But owing to the mechanical impediment of air, it is not generally in this condition. Now the temperature at which the condensation of the vapor begins, that is, the temperature at which the amount of vapor in the atmosphere is sufficient to saturate the air, is called the dew-point. [For instance, suppose every cubic centimeter of air held 13.63 grammes of water vapor, while the temperature is 20

degrees Celsius. The air is not saturated with this amount at this temperature, but it is saturated at 16 degrees. Therefore, 16 deg. would be the dew-point for this case.]

When we speak of the humidity of the air, we do not mean to give the actual amount of vapor in the air, but the proportion of this amount, and the amount which it can contain at the given temperature, or the nearness of the actual temperature to the dew-point. [Thus the air is "dry" when it is far from its saturation-point or dew-point, but "moist" when it is near to this. Thus, in a hot day, (as the higher the temperature, the more vapor there can exist), the air can contain much vapor, and yet be "dry," while, on a cold day, it can be "moist," although containing only a fraction of this amount.] Humidity is then the ratio of the elastic force at the dew-point to that at the given temperature. We reckon it according to the formula: Humidity = $100 + \frac{e - E}{E}$ where we multiply by 100 to get the result in per cent., and where *e* = elastic force at the dew point, and *E*, the elastic force at the given temperature. For instance, suppose our dew-point to be 50 degrees, and our actual temperature to be 70 degrees, Fah. As the elastic force at 50 deg. is 0.361 (in. mercury), and the elastic force at 70 degrees is 0.733, (these numbers have been found by experiment), the humidity is 49.2 per cent. For, according to the formula.

$$\text{Humidity} = 100 \times \frac{e}{E} = 100 \times \frac{0.361}{0.733} = 49.2$$

As the elastic force increases more rapidly than the temperature, if we mix vapors, which acquire their maximum density at different temperatures, we get a precipitation. We can reckon this amount of precipitation. Thus, we mix a cubic foot of vapor of maximum density at 90°, with a cubic foot of vapor of maximum density at 60°. We have then 2 cubic feet at the mean temperature of 70°. Our tables show the first to weigh 14,810 grs.; the second, 4,089 grs. The two then weigh 14,810 + 4,089 = 18,899 grs.; or one foot weighs one-half of this, or 9,449 grs. But at the temperature of 70°, the maximum density can be only 7.992 grs.; therefore 9,449 - 7.992 or 1.457 grs. are condensed.

Rain Theories.

Hutton evolved two theories of rain from these principles. When the air bearing vapors comes into hot regions, it is heated, carried up into the higher regions of convection, and the vapors condense and are precipitated in heavy showers of rain. 2. When a mixture of warm air and warm vapor with cold air and little vapor occurs, we have gentle rains. The first occurs in tropical regions; the second in the temperate zones.

In certain places in the tropical region, particularly in the forest of Brazil, for instance, the rains occur at regular times even to the hour. Thus, the nights and mornings are clear, but at noon and during the afternoon it rains. This may be thus explained. At the rainy season the sun is nearly vertical in such places. By noon it has heeded the land so that the winds bearing the vapors are carried directly up to the colder regions of space and the vapors are condensed and fall as heavy rain. By night the heat has decreased, and the winds regain their horizontal direction, carrying away the vapor during the night and morning, (which are therefore clear) until the next noon, when the same phenomenon occurs as before. This takes place for, say 90 days, when the position of the sun has so changed that the necessary conditions are not presented, and the dry season occurs.

The lecturer proceeded in his application of the matter to England and India, giving data, and examples. He then came to the case of San Francisco. Here, as the ocean is not warm, while the land is, we have no rains, except when the wind is from the south, when the vapors brought by it are warmer than the land and condensation, or rain, follows. The next lecture will be on Boiling, and the Spheroidal State will be particularly considered.

THE CANAL BILL.—We have information from a reliable source, that the bill about to be presented to Congress asking for a land subsidy to aid in the construction of a canal through this country, will be so guarded as to reserve all mineral lands to the Government, and protect actual settlers to rights already acquired, and all other rights acquired by any one prior to the passage of the Act. It will also provide for the sale of water here and elsewhere along the line of the canal, wherever a demand may be made, to the extent of its capacity. It will also limit the price of water per inch per day, at the usual measurement to miners.—*Placerville Democrat*.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, Jan. 28, 1871.

Gold and Legal Tender Rates.

San Francisco, Thursday, Jan. 26, 1871.—Legal Tenders buying @91; selling @91½. Gold in New York to-day 110½.

Table of Contents.

Hesse Grinder and Amalgamator, Ill.; Automatic Stop Governor, Ill.....	Page 49
MECHANICAL PROGRESS.—Boring Machines at Mont Ceniz; Locomotives for Canada; Wood-Saving Machine; Fret Machines; Gas Purification, Connecticut Manufactures; American Russia Iron; Rubber Tires; Mail Lock.....	50
SCIENTIFIC PROGRESS.—Glacier Motion; Fusing Platinum with the Blowpipe; Alcohols; Geography of the Sea Bed; Glaciers; Geol. Survey of Cal.....	50
Bound East; Notes of Travel in San-Joaquin County.....	51
MINING SUMMARY; Mining Share Market; Stockholders' Directory.....	52-53
INDUSTRIAL MISCELLANY.—Colonization Movements; Hughes' Patent Lantern, Ill.; Opium Culture; Silk Culture; California and Eastern Agricultural Notes, etc.	
Vaporization and Elastic Force of Steam, Ill.....	55
State University; Railroad Matters; Killed by One's Friends.....	56
Full List of Patents; Notices of Recent Patents; Smelting Furnace, Ill; Thompson Road Steamer.....	57
HOUSEHOLD READING.—Health; Cooking Meat; Vegetables; Food Medicines; Domestic Receipts; Mechanical Hints; Life Thoughts; etc.....	58
Things and Events at White Pine; Brown's Piston Packing, Ill.....	70

THE STATE UNIVERSITY.

The Board of Regents met on Monday, principally to settle indebtedness incurred lately. Bills, amounting to \$4,616.34, were ordered paid, and others, amounting to \$13,185.61, were ordered paid when approved by the proper committees. The Board adopted a resolution offering, in effect, to pay \$20,000 cash for the Brayton Estate instead of \$22,000 in interest-bearing bonds payable in 10 years. Resolutions were also adopted, giving Mr. George Tait the title of Assistant Professor of Ancient Languages, empowering this gentleman to employ such assistants as have been authorized by the Board for the Fifth Class, during the present term; also providing for permanent instructors in this class.

The construction of the University building is to be stopped, as this has cost more than was estimated. A compromise was effected with the contractor who was to furnish the bricks, and from to-day on all work is to be suspended.

We are to wait, then, an indefinite period of time, before we can have our University building, of which so much has been said. The action of the Board is probably the right one in the present case, but this result does but little justice to the financial ability of the Regents, some of whom are noted as the sharpest business men on the coast. We are informed that \$250,000 has been expended on the University during the past year, yet we have but a poor showing at the present time. We once thought that we had a University amply endowed and provided for in every respect, one which should make the name of California noted throughout the educational world. Yet here we are with a few students and a large deficiency of funds in the treasury. Shall we wait for the millennium for our University to acquire a respectable standing, or shall we be obliged to have another grand lottery?

THE DEER LODGE *Independent* comes to us enlarged and in a very neat dress, which is a marked improvement. Its typographical execution is very good, and the paper is a credit to its publishers and editors.

Railroad Matters.

[Continued from page 40.]

Narrow Gauge.

The subject of narrow-gauge roads is getting to a point where we shall soon have actual working tests, according to appearances. The California and Arizona R. R. Co. intend adopting this narrow gauge, as before remarked, and the Nevada and Grass Valley R. R. Association have been talking and figuring on the matter. The Grass Valley Union has given estimates, based on the nature of construction where a 4 ft. 8½ in. gauge would cost \$24,000 to \$30,000. It may be of interest to re-print these estimates of the Union, for although no definite figures can be given before the nature of the route is known, yet everybody desires to know "somewhere about how much" it will cost. The estimate is per mile.

For 30 lb rail, 53 tons @ \$90.....	\$4,770
Spikes and Fish-Plate, 6 tons @ \$120.....	720
Freight on above 59 tons @ \$15.....	885
2,600 ties, 6x8x5, 39 M feet @ \$20.....	780
Grading and Laying Track (say).....	2,500
Station and Platforms (say).....	50
	\$9,705

The grading may cost more or less per mile, according to the nature of the country over which the road will run.

The difficulty of making general estimates will be seen from the above, where, for instance, is included an item of freight on the iron, which amounts to about 9 per cent. of the whole. In any given case, there will be plenty of such additional items.

This Nevada and Grass Valley R. R. Association sprang from the old Nev. G. V. and Colfax R. R. Co., which was disbanded, and reorganized as the first-named association on the 14th ult. There have been four routes proposed for their road: to Colfax, to Marysville, to Wheatland (connecting with the California and Oregon road) and to Lincoln (same connection). The Marysville route is now the most probable, as not only do the Marysville people seem disposed to give aid, but a conference has been held with a committee of the Colusa, Marysville & Nevada R. R. Co., and a survey of this route is to be undertaken. The last-named company has \$114,000 already subscribed to its stock, and seems inclined to give valuable assistance. The conference meeting was held on the 9th inst.

Nevada.

Narrow-gauge has stirred up our Nevada friends again. On the 5th inst., articles of association of the Nevada Central R. R. Co. were filed. The company proposes to build a road "from a point on the Humboldt river, either at Gravelly Ford or Belowwee station (on the C. P.), Lander county, through the counties of Lander, Nye and White Pine, to Hamilton;" or, as stated by the Treasurer, from Palisade to Hamilton via Mineral Hill, Grass Valley and Eureka, on the 1 ft. 11½ in. gauge. Capital stock, \$5,000,000 (the estimated cost of building and stocking the road), of which \$150,000 have already been subscribed, and 10 per cent of this amount actually paid in. Then the Elko and Hamilton route is said to be earnestly taken in hand by interested parties, who form the Eastern Nevada R. R. Co., incorporated Jan. 20th. Other routes are mentioned, but these are now the prominent ones. It appears that the Nevada law, of 1866, provides that all railroads built by companies incorporated under the laws of the State, "shall be constructed with tracks of the uniform width or gauge of four feet eight and one-half inches, with the best quality of iron rail, known as "T" rail and "H" rail, or other patterns of equal utility, etc. A bill has been introduced into the legislature to repeal this section, which, according to our ideas, should be abolished. The people of Nevada seem alive to their interests, and to be going to work in a business-like manner to improve their facilities of transportation,—a matter of the greatest importance to them.

Montana.

Montana is also for building roads. The Northern Pacific has already been alluded to. The Cheyenne, Big Horn and Helena propose to build from Cheyenne to Helena. On the 15th of December a company was organized in Virginia City, its purpose being the construction of a railroad from Corinne, Ogden or Carter (the ultimate location of the southern terminus to be determined by the amount of stock taken at

the different points named) to the Gallatin valley, the route being through one of the passes at the head of the Madison river and thence down that stream to the Three Forks of the Missouri, where it is to connect with the N. P. R. R. and the Cheyenne and Helena line. The Helena *Gazette*, of Jan. 2d, says: The action of the people of Helena and Virginia City have aroused the people of Bozeman to action, and they propose to hold a railroad meeting next Saturday. This speaks well for their enterprise, having to go it alone without a local newspaper to advocate their interests. The proposed road is named the "Bozeman & Fort Fetterman R. R."

Utah.

From Utah, we have the following information, dated Salt Lake, Jan. 18th: A company was incorporated yesterday to run a railroad from the terminus of the Utah Central Railroad, of this city, south to Payson, a distance of sixty-five miles. The following officers were elected: William Jennings, President; John Sharp, Vice President, S. J. Jonasson, Secretary; J. T. Little, Treasurer; F. Little, Superintendent of Construction; Chief Engineer, John Fox; Directors—Joseph A. Young, William Jennings, F. Little, J. Sharp and D. H. Wells. Mr. Fox will immediately proceed to locate the line, and will commence work as soon as the season opens so that grading can be done. The intention is to build a branch line to the mouths of Cottonwood and Brigham Cañons.

The chances are said to be favorable for Congressional aid to the Salt Lake & Colorado R. R. Co., which proposes to build a railroad from Salt Lake City, by Utah Lake, the Severn and Rio Virgin rivers, to the head of navigation on the Colorado river, and thence to the most available point at or near the head of the Gulf of California. "The road," says the *Bulletin*, "would run for about 200 miles south of Salt Lake City, through a valley sparsely settled by Mormon colonies. Beyond there is nothing but a few military posts in the desert." The bill, which the Senate committee has agreed to report, according to published statements, makes the land grant ten sections to the mile for about 700 miles, an aggregate of 4,800,000 acres. It has several new restrictive clauses, one of which requires the sale, in quarter sections, to actual settlers.

Colorado.

Colorado has accomplished wonders in railroad matters. A year and a half ago there was not a mile of track laid within its limits. There are now 358 miles of road in operation, viz: Denver Pacific, Cheyenne to Denver, opened June 24, 1870, 106 miles (a few miles are, however, in Wyoming); Kansas Pacific to Denver, opened Aug. 16, 204 miles; Colorado Central, Denver to Golden, opened Sept. 38, 17 miles; Boulder Valley, Denver to Austin's coal hanks, opened Jan. 17, 1871, 31 miles.

Colorado does not stop here, but proposes doing as much more this year. Work is being pushed on the Colorado Central, up Clear Creek from Golden to Central, and this will probably be finished this year. The Boulder Valley is being pushed to Boulder City, and this, too, will be running next summer. It is said that it may be extended still further into the mountains via Boulder Creek, and perhaps even to Salt Lake City. A line is being located for the Golden City, Burlington and Pine Bluffs R. R., which will form a direct communication between the mountains and the Union Pacific. The Kansas Pacific will build from Carson to Fort Lyon, on the Arkansas, on their thorough Pacific line. Work is reported as commenced on the Denver and Rio Grande route, to El Paso, in New Mexico. The Central City *Register* says: It is proposed to build a narrow-gauge (2½ feet) road, and if the means are forthcoming, it will be completed from Denver to Colorado City by the 1st of next July. The route will be along Cherry Creek or one of the Plum Creeks, over the Divide and then down Monument, and will go through the counties of Arapahoe, Douglas and El Paso, until it reaches Colorado City.

The Colorado *Miner* publishes extracts from the prospectus of the "Rocky Mountain Railway of Colorado," which seems to propose building a narrow gauge system of trunks and branches, to tap all the principal mining districts from the new Swansea coal fields, at the base of the mountains, to Gray's peak, including Central, Georgetown, Cariboo, Grand Island, etc.

In 1869, we rode into Denver (from Cheyenne) in the stage-coach, and that last jolt, just before crossing the creek, made us devoutly wish for an easier method of conveyance. Now we find that Denver is the terminus of four roads, to Cheyenne, and thence to New York and San Francisco;

to Kansas City and the East; to Golden and the coal, and (soon to) the gold and silver mines; to Boulder and the coal mines on the road, and perhaps, by and by, to Salt Lake. The Denver and Rio Grande will make a fifth road terminating here. Verily, Denver seems to have a bright future near at hand.

It will be seen from our review, that the narrow gauge question has stirred up quite a railroad excitement, and that there is, moreover, a speedy chance of our having a narrow gauge road on our coast. There are one or two examples of such a road at the East, and several lines are reported as about to be built. In our State, the Nevada and Grass Valley, and the California and Arizona companies, will most probably test the matter at an early day; while other possible narrow gauge lines are talked of. In Nevada, the Eastern Nevada, and the Nevada Central will adopt it, if allowed by law. In Colorado the same is to be done by the Denver and Rio Grande, and the possible Rocky Mountain Railway. Our coast, apparently, is not behind the world in energy and readiness to adopt measures which promise well.

The energy displayed in pushing the Northern and Southern Pacific roads, give us fair prospects of better means of communication with the East, while the Union and Central roads are doing much to gain and secure the overland trade by making continual improvements. We have heard a visionary plan of a direct route from New York to Omaha, and rumors that the great Vauderhilt had secured the control of lines from New York to Omaha.

Killed by One's Friends.

If Messrs. Cole and Johnson, the one Senator and the other Representative of our State, and both supposed to be friends of the miner, are desirous of disgusting intelligent men with mining schemes in Congress, they could not have done better than in introducing the two bills which they have. The former has presented a bill providing that the United States shall pay three million of dollars to a company, "The U. S. Mining school and Metallurgical Co.,"—for founding and carrying on a free school,—to accommodate 300 students, with metallurgical works in connection therewith; the latter has presented another bill the principal object of which seems to be to lend money, not exceeding \$250,000 in each case to mining companies.

These measures evidently could be made to give rise to so much dishonesty, that we do not suppose that they will live through the sessions of the committee on mines and mining to which they were referred. Nor does their presentation imply that they are favored by the gentlemen who introduced them. But the fact of their introduction will tend to make others averse to every proposition to give aid to the mining interests, and we are surprised that these gentlemen could be led to present them, even if it was "only to oblige a friend."

ARIZONA INDIAN MATTERS.—Governor Safford, in his message to the Legislature, delivered Jan 16th, devotes considerable space to the Indian question. He advocates the extermination policy towards the Apaches, and this policy seems to have gained ground among our Eastern friends. He recommends raising volunteers in the country, who are inured to the climate, acquainted with the Indian habits, and fighting for their own homes, as they would be the most efficient soldiers and more economical to the Government than regular troops. From present appearances, with Gov. Safford to do the arguing and Gen. Stoneman to do the fighting, the Apache stands a good chance of being "cleaned out."

A GOOD APPOINTMENT.—A better appointment, if ability and honesty are considered, could hardly have been made than of Prof. W. P. Blake as Geologist and Mineralogist of the San Domingo Commission. The professor's report will be a good one, and will carry much influence with it.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JANUARY 3d.

SEWING-MACHINE FOR WORKING BUTTON-HOLES.—Eugene Moreau, San Francisco, Cal., assignor to himself, James W. Haggerty, and Samuel Hill.

WHEELBARROW-FRAME.—Boekwith W. Tuthill, Oregon City, Oregon.

CAR-WHEEL MOLD.—William Ellison Worth, San Francisco, Cal.

REIN-HOLDER.—William Barstow, San Francisco, Cal. Antedated, December 30, 1870.

FOR THE WEEK ENDING JANUARY 10th.

ROLLER-SKATE.—Matthew H. Kimball, San Francisco, Cal., assignor to himself and James Garvey, same place.

PUMP.—Nathaniel P. Sheldon, San Francisco, assignor to himself and Wm. H. Hall, of San Jose, Cal.

FOR THE WEEK ENDING JANUARY 17th.

PORTABLE CAMP-GRATE.—Lorenzo D. Gavitt, Los Angeles, Cal. Antedated, January 7, 1871.

ENDLESS-WIRE ROPE-WAY.—Andrew Smith Hallidie, San Francisco, Cal.

SHINGLE-MACHINE.—Holiday C. Babcock, Eureka, California.

WATER-METER.—Frederick G. Hesse, Oakland, Cal.

MODE OF MAKING BRICKS.—Francois Lambert, Los Angeles, Cal.

WATER-WHEEL.—Albert L. Moore and Norman S. Parker, El Dorado, Oregon.

WHISKY.—H. Webster & Co., San Francisco, Cal.

Notices of Recent Patents.

DIRECT ACTING STEAM ENGINE.—W. D. Hooker, San Francisco. This is an ingenious and, apparently, very efficient improvement in that class of steam engines which are particularly adapted for steam pumps and the like, where it is necessary to be able to start the piston from any point in the stroke,—an important object which it is difficult to obtain with certainty. Mr. Hooker's invention consists in a combination of valves to effect this, and a combination of the main and auxiliary valves with the main piston of the engine, so that the action of the valves is made certain. For a pin projects into the cylinder, in such a way that the piston strikes this and thereby moves the auxiliary valve, so that no ordinary trouble can prevent its admitting steam to the main valve. It consists also in an arrangement for arresting and cushioning the piston at the end of the stroke, this being in connection with the action of the auxiliary valve just alluded to. The details of the construction cannot, of course, be plainly and fully described without the aid of explanatory drawings, and we can therefore merely touch on one or two points in a general way; but the invention deserves the careful examination of mechanics.

TIRE FOR TRACTION ENGINE.—O. Hyde, Oakland. The advent of the Thompson Road Steamer has awakened a new interest in the matter of traction engines, and rendered any subject connected with them of special importance. The rubber tire being the principal point, there is nothing more natural than that efforts should be made to improve this. Mr. Hyde has introduced a very ingenious device of the kind. He employs cylindrical or polygonal blocks of rubber placed side by side around the wheel. These blocks can have a central hole in order to have greater contractive and expansive power. The triangular spaces between the outer parts of the blocks are filled by wooden or metallic wedges, which are secured to the vertical rims of the wheel by links, which extend downwards at an angle and are bolted to the rims, the bolts passing through slots so that they can play back and forth as the

wedges are compressed and return to their original position. These wedges unite the whole into a compact tire and prevent the elastic cylinders from being displaced. By this combination and arrangement, the metallic tires of traction wheels can be encircled with a cheap, substantial and efficient elastic tire which can easily be fitted and easily repaired in case of necessity.

IMPROVED BEE-HIVE.—J. R. A. Williams, Colusa, Cal. Mr. Williams has invented a hive which will tend greatly to improve the health of the bee, and afford protection against its enemies. For this purpose, the hive is so constructed as to secure perfect ventilation of every portion of the hive, where ventilation is necessary, and the entrance is so arranged as to provide against the inroads of the bee-moth or miller. These important objects are secured in a simple but ingenious manner, and advantages obtained thereby are such as to recommend the device to all lovers of sweets and persons owning apiaries.

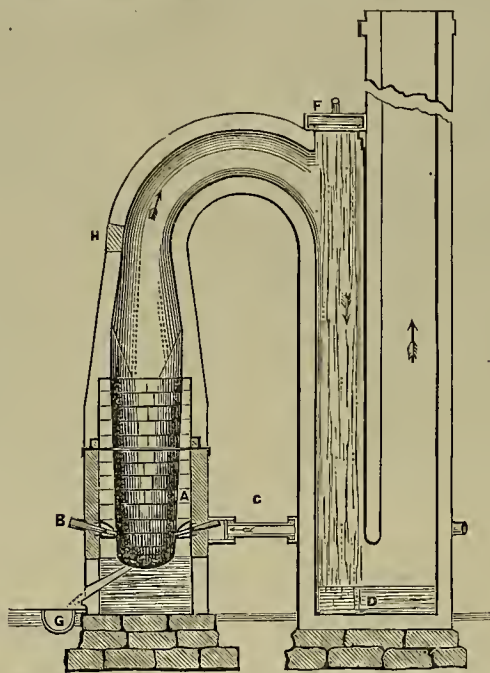
The Gerrish and Hinkle Furnace.

Our illustrations show the construction of a furnace for smelting ores, which has

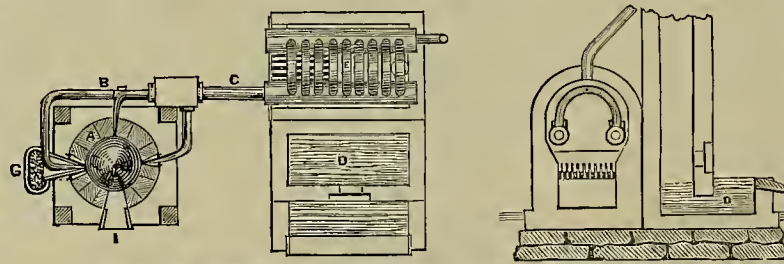
with a circular aperture in the middle of a proper size; for the furnace has a circular section. On this plate rests all of the upper part of the furnace, so that the walls, A, at the melting zone which are most exposed, can be removed without touching any part above this iron plate.

The upper part of the furnace terminates in an arched canal or flue leading into a shaft. At the top of this is a reservoir, F, from which there falls a shower of water. This shower aids and regulates the draft and condenses the condensible part of the fumes, which collects in the water tank, D, on an iron plate, whence the mass can easily be removed. The remaining gases then rise up the adjoining shaft to the chimney. The surplus water at D is drawn off and can be pumped up into the reservoir, F, for further use.

The tuyers, B, may be as numerous as desired, and may be supplied with heated air, or air and superheated steam. The air (or air and steam) is carried through a



GERRISH AND HINKLE'S HOT AIR AND STEAM SMELTING AND CONDENSING FURNACE



SECTIONS SHOWING THE ARRANGEMENTS FOR HEATING THE BLAST.

lately been invented by Messrs. George M. Gerrish and Philip Hinkle, of this city, and which is protected by a caveat taken out through the SCIENTIFIC PRESS Patent Agency.

The points noted particularly are the improved method of constructing the furnace, so that the upper part is supported independently of the lower portion, which can thus be repaired or removed at any time without disturbing the rest of the furnace; the employment of a free spray of water to condense the vapors and to aid in increasing and regulating the draft; and in the use of heated air or air and superheated steam for the blast. These points will be understood more fully by a reference to the engravings.

On the furnace foundation are built four solid masonry walls, which rise about three feet high and which enclose a proper hearth composition which is firmly tamped in, and out of which is cut the ercible and the tap-hole. On this wall, at the four corners, are four pillars, about six feet high (for a furnace 32 inches in diameter), on which rests an iron plate, cast in four sections, fastened in a solid manner, and

series of tubes, E, arranged over a fire-place, and thus thoroughly heated before entering the furnace. The escaping heat from the fire-place enters the escape shaft of the furnace, and thus materially assists the draft. This is denoted in the lower right-hand cut. In the engravings, the tap-kettle is marked G, and the place for removing the slag is denoted by I.

The construction for condensing and collecting the fumes may be also used for roasting furnaces, for which it is equally applicable. Two furnaces can be built so as to lead into one chimney, thus economizing materially in the cost of construction. The inventors state that two furnaces thus built, capable of smelting 30 tons daily, can be constructed, complete in all the details, for about \$7,000.

The inventors believe that they have a furnace which is particularly applicable to the wants of the coast, and which will prove most advantageous and timely, now that there are so many new smelting operations projected. They invite the attention of smelters to their construction. Persons desiring further details may apply to Messrs. Gerrish & Hinkle, San Francisco.

The Thompson Road Steamer.

In accordance with an invitation from Mr. G. D. Roberts, we went over to Oakland, last Saturday, to witness the performance of the Thompson Road Steamer. Quite a number of gentlemen were present, including Gov. Haight, L. L. Robinson, Judge Lake and other prominent individuals. Attached to the steamer was an omnibus, which was filled, inside and out, while six or seven gentlemen took positions on the engine, and several boys "hung on" behind the omnibus. The wagon moved from the corner of Washington and Seventh streets, down Eighth street to Adeline, back on Twelfth to Broadway, and then down the San Pablo road. Both single and double gear were used, and the steamer was steered from one side of the road to the other with ease. It ran easily, through deep mud in places, and otherwise acted satisfactorily.

The coal employed was of poor quality, as was the stoking, so that there was at no time a pressure of over 60 lbs. of steam. On the San Pablo road a supply of water was taken in, and a fresh start was made. But here a mishap occurred. At the water-tank a pool of water had been standing for an indefinite period of time, forming a deep mud-hole. Into this hole one wheel sank nearly three feet. The steamer was thus tipped on one side, so that the upper wheel had no grip, and the gears around the gearing rested on hard ground, so that the lower wheel could not reach bottom. Had both wheels sunk in, the steamer could have extricated itself; but its peculiar position, with no grip on either wheel, rendered digging and pulling necessary.

As the time for the return of the party to San Francisco was near at hand when the steamer was extricated, the proprietors were unable to do more than repeat the performances on the road back to the depot. Previous performances, even in going across a similar ditch, have proved the good qualities of the steamer, and we regard the present trip as no fair test of its qualities. The steamer is now on exhibition at Woodward's Gardens, and we are promised further tests in plowing and in dragging heavy teams over rough and steep roads.

After witnessing experiments at New Jersey, John Young (acting for his father, Brigham Young) was so well satisfied with the qualities of the engine, that one has been ordered for use in Utah. We believe that its introduction will be of advantage to our coast, and that, judging from what the steamer has actually done, it can perform all that is claimed of it. We shall report its further tests as they occur.

THE TECHNOLOGIST still continues to improve. For thoroughness and reliability, and for high aims and attainments, it has no superior in the United States. It contains two full-page engravings on tinted paper, one of an architectural and the other of a mechanical subject, besides several other illustrations, all in first-class style. It deserves the support of all who desire to have a really good industrial publication, and is well worth its subscription price,—\$3 yearly. Specimen copies can be obtained of the Industrial Publication Co., 176 Broadway, N. Y.

THE MINES OF UTAH, their Location and Development, is the title of a pamphlet, written by Eli B. Kelsey, which we have just received. It gives a history of the various mining camps, and a description of the districts in the Territory.

THE GAS LIGHT JOURNAL has put on a new dress this year, which is more becoming than the old one. The paper is a very valuable one, which we always read with much pleasure and profit. If it desires our recommendation, it can have it cheerfully.

HOUSEHOLD READING.

Health.

Dr. Trall, a writer of note upon medical subjects, describes health as "the natural play of all the functions;" and as none of the medical profession have given us any thing better, I shall accept it as a correct definition, and endeavor to show my readers how inevitably we are bringing premature death upon ourselves and ruin to the nation through ignorance of the laws of health.

We are a nation of invalids; not an individual in perfect health can be found; scarce any in the moderate enjoyment of that greatest of God's blessings! The rule is sickness, and health is the exception, among our women and children in particular.

Can this condition continue and not grow worse? And if worse, does not annihilation of the race follow sooner or later? Yet we are intelligent and liberal, spending annually millions of dollars in schools and reading matter; endowing scores of medical colleges for the education of our young men (and women too now) and not a town or village but can boast of its two or twenty doctors, who hold the same position in society as the minister—one caring for and curing the souls of men, and the other their bodies; with this difference:—one aims to prevent crime by a pure life; while the other holds out a palliative, in the shape of drugs, to avert the suffering caused by wrong habits of life, etc.,

No minister believes or teaches his people that they may lie, steal, and slander their neighbor, and by a repentance merely, be saved through their (or the clergyman's) prayers! No, a repentance (recognition of sin) is necessary, and then "cease to do evil and learn to do well" must follow before the "holy man" can cure the soul; proving conclusively that the soul purifies itself, through pure teaching and pure living.

And just so with the body. Through unphysiological habits, in eating, drinking, etc., we defile the body, filling it with impurities (pork, fine flour, whiskey, etc.) until the condition called disease follows. The doctor comes and drugs the patient, adding more impurities, until the victim dies, or recovers, in spite of the drugs.

And now compare the two teachers: does the physician tell the patient the cause of his illness; how to avert it, and so keep his body the "pure temple" which the Bible speaks of? Oh, no; for perhaps he honestly believes sickness to be the lot of man, or a visitation of God, intended to purify his soul (not body) and teach patience and godliness.

Think of it,—a sick man capable of studying, God's laws, which the well man rejects or is not deep enough to fathom.

Health is the time for learning God's laws and obeying them. And if our physicians are ignorant of these subjects, they should be instructed; or if they already understand Hygiene and fail to teach it to the people who constitute their "flock," they are certainly to blame. Should not our doctors of medicine, like our doctors of divinity, endeavor to teach the people how to avoid the sin of sickness?

That there is a way so to live, in harmony with our natures, as to keep well, (even with our inherited diseases following us "to the third and fourth generation") accords with our intelligence upon the healthfulness, of domestic animals and all vegetable life, which subjects are considered important studies for our scientific men. Not only do they study the conditions of disease but acquaint themselves with the normal habits of animals and plants, and place them in such relations as will best supply what is requisite for their perfect health, well knowing that it is only in health that they can expect them to be beautiful and perfect of their kind. And why not desire the same for the human race?

Do not "nature's laws" operate alike with them as with the lowest forms of life? Do we not desire only the intelligent, true, social and healthy for our friends and relatives, feeling a just pride in so choosing? And are there not spent annually millions of dollars in our churches, public schools, colleges, alms houses, hospitals, prisons, etc. to improve the people? Yet how few are earnest enough to search for the hidden causes underlying the continued needs for these institutions, by removing which we

avert the desire to commit crimes against soul and body. In future articles I may possibly show how, by studying the laws of our natures and obeying them, we may not only be healthier, but happier.

L. F. J.

A NEW WAY TO COOK MEAT.—A good way to cook meat is to seal it in a vessel hermetically tight. Cooked thus a long time in its own juices, it is rendered very tender, and has a peculiar, appetizing flavor.

Take an earthen jar that will stand heat, with tight fitting cover. If beef is to be the dish for dinner cut in convenient pieces, lay them in the jar, rub each piece with salt and pepper and a little lump of sugar, put in a little water; lay on a piece of thick buttered paper and press down the cover. If you think it will allow any steam to escape, mix shorts or rye meal with water to a paste; press strips of this all round the edge of cover. Bake in a moderate oven four or five hours, according to tenderness of meat. Chickens or turkeys are excellent cooked in this way. The toughest old hen can be rendered toothsome by this process. A good plan for fowls is to put in the bottom some strips of carrots, a little onion, if liked, with bread crumbs, red pepper, and lumps of butter, with the seasoning as above.—*Western Rural.*

VEGETABLES.—Vegetables intended for dinner should be gathered early in the morning. A few only can be kept twelve hours without detriment. When fresh-gathered they are plump and firm, and have a fragrant freshness no art can give them again after they have lost it by long keeping, though it will refresh them a little to put them into cold water before cooking. A little soda in the water they are cooked in will help to preserve the color of those that are green. They lose their good appearance and flavor if cooked too long, and are indigestible if not cooked enough; close attention and good judgment are necessary to know the proper time to take them up. Always drain the water from them well before sending to table; have the dishes hot upon which they are placed, and never send them to table until the meats are served; when sent in too soon, and often uncovered, they become chilled and unfit for use. Always put vegetables to boil in hot water.

FOOD MEDICINES.—Dr. Hall relates the case of a man who was cured of hiliouness by going without his supper and drinking freely of lemonade. Every morning this patient rose with a wonderful sense of rest, refreshment, and a feeling as though the blood had been literally washed, cleansed, and cooled by lemonade and the fast. His theory is that food may be used as a remedy for many diseases successfully. For example, he instances cures of spitting blood by the use of salt; epilepsy and yellow fever, watermelons; kidney affections, celery; poison, olive sweet oil; erysipelas, pounded cranberries applied to the parts affected; hydrophobia, onions, etc. So the thing to do in order to keep in good health is to know what to eat, and not what medicine to take.

DISINFECTING HOUSES.—A ready method of disinfecting houses in which cases of scarlet fever have occurred is recommended by the Food Journal. It is this: Dissolve in a certain quantity of water as much saltpetre as it will hold: and in the solution soak several sheets of coarse blotting paper, which must be allowed to absorb as much as possible. Carefully close every door, window and chimney of the affected room, and let the prepared blotting paper be lighted and smoulder itself out. This method is said to be efficacious, and is certainly easy of trial.

TO STOP BLEEDING.—It is said that bleeding from a wound, on man or beast, may be stopped by a mixture of wheat flour and common salt, in equal parts, bound on with a cloth. If the bleeding be profuse, use a large quantity, say from one to three pints. It may be left on for hours, or even days, if necessary. The person who gave us this recipe says that, in this manner, he saved the life of a horse which was bleeding from a wounded artery. The bleeding ceased in five minutes after the application.

POTATOES, as usually cooked, are probably the most objectionable article of food which can be presented to a weak digestion. The starch granules are but half ruptured, and are held together by cellular tissue, so that they are reduced by mastication only into small pellets, which require long soaking in gastric juice before they can be broken up sufficiently for solution.—*Chambers on Indigestion.*

CAKE AND CANDY.—A celebrated physician says that it is cake that ruins the teeth and not candy, as is generally supposed.

Domestic Receipts.

POOR MAN'S PLUM PUDDING.—One cup chopped suet, one cup molasses, one cup sweet milk, one egg, two cups flour, a pinch of salt, nutmeg and cinnamon. Stir all together; then add one pound raisins and one pound currants; wet the cloth in cold water previous to putting the pudding into it. Boil four hours. To be eaten with wine sauce.

GERMAN CAKE.—One cup butter, two cups sugar, one cup sweet milk, three eggs, two cups flour, one tea-spoonful soda and two tea-spoonful cream of tartar; mix all together and flavor with lemon. Sprinkle the top thick with ground cinnamon before baking. Ice as soon as baked.

STEAMED BROWN BREAD.—One cup sweet milk, one cup sour milk, half cup molasses, one cup flour, two cups Indian meal, one tea-spoon soda. Pour into a mold and tie down tightly. Put into boiling water and steam from two to three hours.

TO MAKE GRAHAM GEMS.—Stir Graham meal into cold soft water or milk to the consistency of a thick batter. Beat well with the spoon and drop into hot greased gem pans (either tin or cast-iron ones). Bake in a very hot oven.

PLAIN RICE PUDDING.—One teacup of rice, one teacup of sugar, a little salt and two quarts of milk. Flavor with cinnamon or lemon and bake slowly two hours.

SAGO PUDDING.—Pare and core six sour apples; lay in a large dish one cup brown sugar and three-quarters cup sago; fill the dish with cold water and bake two hours. Any other fruit may be used in place of the apples.

HOW TO KEEP A MUSTARD PLASTER MOIST.—By adding a little syrup or molasses in mixing a mustard poultice it will keep soft and flexible, and not dry up and become hard and uncomfortable, as when mixed up with water alone. A thin paper or fine cloth should come between the plaster and skin. The strength of the plaster is varied by the addition of more or less flour.

CRUMPETS.—Take three teacupful of raised dough and work into half a teacupful of melted butter, three eggs, and milk to make a thick batter. Bake in a hot, buttered pan, in half an hour.

Mechanical Hints.

HOW TO BORE HOLES IN GLASS.—Any hard steel tool will cut glass with great facility when kept freely wet with camphor dissolved in turpentine. A drill-bow may be used or even the hand alone. A hole bored may be readily enlarged by a round file. The ragged edges of glass vessels may also be thus easily smoothed by a flat file. Flat window glass can readily be sawed by a watch spring saw by aid of this solution. In short, the most brittle glass can be wrought almost as easily as brass by the use of cutting tools kept constantly moist with camphorized oil of turpentine.

PARCHMENT PAPER.—Paper can be readily converted into vegetable parchment by immersing it for a few moments in a mixture of two volumes of sulphuric acid and one of water. The acid should be washed off the paper by immersing and slightly agitating it in a large quantity of cold water. The last trace of acid may be removed by finally immersing the paper in water to which a small quantity of ammonia has been added. To prevent contraction or wrinkling, the paper should be stretched on a frame while yet wet. Paper so prepared is transparent, and can be used for tracing paper; and may also be employed as a very good substitute for sheepskin parchment.

SOMETHING ABOUT ISINGLASS.—J. L. Souberaine, who has recently examined the different varieties of this article, points out these distinctions: Russian isinglass dissolves very rapidly in hot water, seldom leaving over 2 per cent. of insoluble residue; it is pleasant to the taste, and yields a firm and transparent gelatine. Bengal or Indian isinglass dissolves readily, but leaves a much larger proportion of residue—from 7 to 13 per cent.; it often has a fishy taste, and its gelatine is not clear. The gelatine obtained from Brazilian isinglass is opaque and acid. The isinglass prepared in China is seldom exported.

ARTIFICIAL TABLETS may be made as follows: Equal portions of ivory dust or shavings, and gelatine or albumen, worked into a paste, and afterwards rolled out into sheets, allowed to harden, and afterwards cut to the required size.

VARNISH FOR DRAWINGS AND LITHOGRAPHS.—Take dextrine 4 parts, alcohol 1 part and water 4 parts. The drawings should be prepared previously with two or three coats of thin starch or rice boiled and strained through a cloth.

Life Thoughts.

It is far better to suffer than to lose the power of suffering.

EXPERIENCE is the father, and memory the mother of wisdom.

CENSURE is the tax a man pays to the public for being eminent.

It is easy to look down on others; to look down on ourselves is the difficulty.

We cannot conquer fate and necessity, yet we can yield to them in such a manner as to be greater than if we could.

He who pleases himself without injuring his neighbor, is quite as likely to please half the world as he who vainly tries to please the whole world.

WHEN fame is regarded as the end, and merit as only the means, men are apt to dispense with the later, if the former can be had without it.

BASE all your actions upon a principle of right; preserve your integrity of character, and in doing this, never reckon the cost.

It is with our thoughts as with our flowers—those that are simple in expression carry their seed with them; those that are double, charm the mind but produce nothing.

ALWAYS laugh when you can—it is a cheap medicine. Mirthfulness is a philosophy not well understood. It is the sunny side of existence.

WITHOUT love we are unhappy; with it we are still unsatisfied, and long ever for our ideal which we can only reach in heaven.

THE highest genius never flowers in satire; but culminates with that which is best in human nature.

Old Age Without Religion.

Alas! for him who grows old without growing wise, and to whom the future world does not set open her gates when he is excluded by the present. The Lord deals so graciously with us in the decline of life that it is a shame to turn a deaf ear to the lessons which He gives. The eye becomes dim, the ear dull, the tongue falters, the feet totter, all the senses refuse to do their office, and from every side resounds the call: "Set thine house in order, for the term of thy pilgrimage is at hand." The playmates of youth, the fellow-laborers of manhood, die away and take the road before us. Old age is like some quiet chamber, in which, disconnected from the world, we can prepare in silence for the world that is unseen.—*Tholuck.*

HONEST INDEPENDENCE.—A tree must be rooted in the soil before it can bear flowers and fruit. A man must learn to stand upright upon his own feet, to respect himself, to be independent of charity or accident. It is on this basis only that any superstructure of intellectual cultivation worth having can be built.—[*Froude.*]

It is quite the fashion to drop now and then a lump of piety into personal conduct, but too often there is little care to "work it in." A life properly seasoned with grace has a uniform flavor.—[*W. H. Beecher.*]

A lazy boy makes a lazy man just as a crooked sapling makes a crooked tree. Those who make our great and useful men were trained in their early boyhood to be industrious.

YOUR STANDING AT HOME.—We often hear the question asked of such and such an one "What is his standing in society?" or "What is his standing in the church, or among business men?" But never think of asking, before we take him into our confidence, "How does he stand at home?" And yet the man who can make reply to this question with an untroubled heart and clear conscience is a hero not so often met with, but that he is worth looking after, and closely cultivating.

"O! I FORGOT."—Of all the despicable excuses offered for omission of duty or neglect to fulfil an appointment, the most contemptible is the stereotyped phrase. "I forgot it." Many persons think that a sufficient apology for the neglect or omission of any promise; with us it is the worst. The great French Minister, Talleyrand, once said, "a blunder is worse than a crime, for a crime may be the effect of circumstances, it may be guarded against, or it may never occur again; but a blunder is always likely to occur." We can forgive a crime, but not a blunder. The man who is always forgetting is utterly unfit for any public position.

Eastern Advertisements.

EVERETT HOUSE,
Cor. Clark & Van Buren Streets.
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amuse-
ment.

The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,
are within one block. The house is SEATLY AND ELEG-
ANTLY FURNISHED THROUGHOUT, and travelers from Cal-
ifornia, Oregon and the Territories, will find the

Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best
possible treatment.

TERMS--\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors.
222-4th Street

**BARBOCK**
FIRE
EXTINGUISHER.

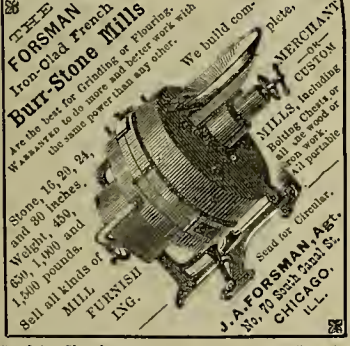
Over 300 Actual Fires put out with it. More than
\$4,000,000.00 worth of property saved from the flames.
The Government has adopted it. All the leading Rail-
roads use it. Insurance Companies reduce rates where
it is introduced. Invaluable for private residences,
school houses, Hotels, Warehouses, and all buildings
where life and property are in danger from fire. Send
for "Its Record." F. W. FARWELL, Sec'y,
122 Washington St., Chicago.

**LEONARD'S**
Patent Vapor Jet Burner and
Hand Lamps.

Also, Portable Gas Burners and
FIXTURES.

County and State Rights for sale.
Send for Circulars.

Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.

**FORSMAN**
Iron-Old French
Butt-Stone Mills
Are the best for Grinding or Flouting.
WARRANTED to do more and work with
the same power than any other.


Stone, 15, 20, 24,
and 30 inches.
Weight 450,
650, 1,000 and
1,500 pounds.
MILL
FURNISH
ING.

J. A. FORSMAN, A.S.T.
No. 70 South and St.
CHICAGO, ILL.

Send for Circular.

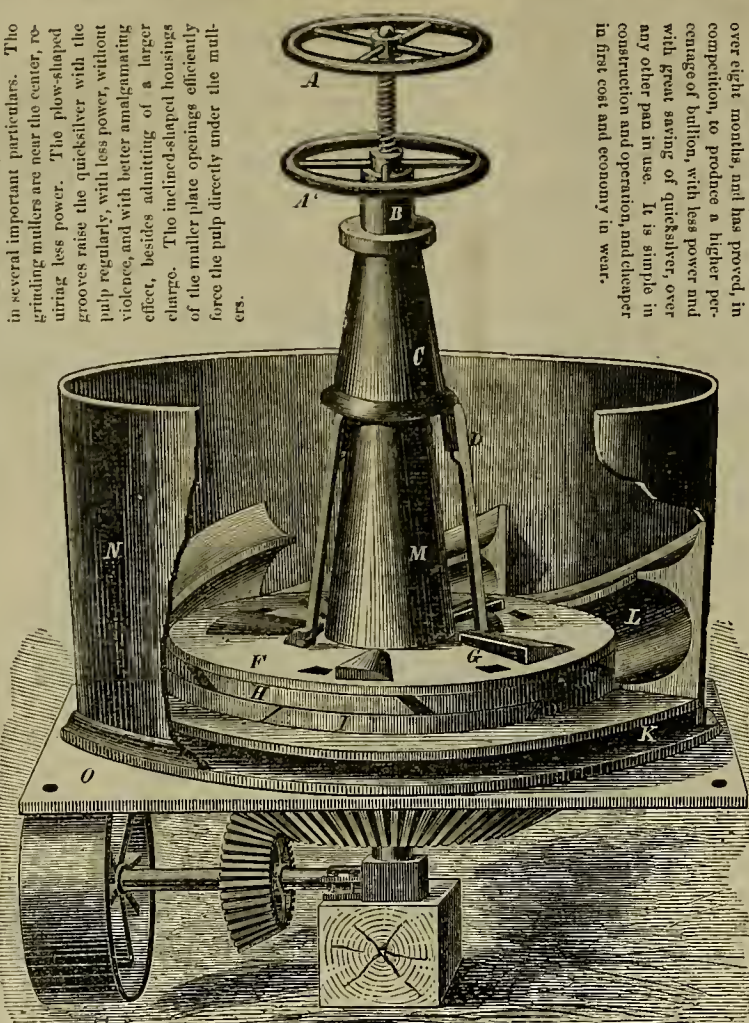
Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.

Withmar Glass and Queensware Company.
IMPORTERS, MANUFACTURERS AND DEALERS IN
China, Glass and Queensware, Lanterns, Looking Glass-
es &c., &c. 113 N. Main Street, St. Louis Mo. The cel-
ebrated Novelty Lanterns always on hand.

**THE EYE! THE EAR!**
DR. D. E. DUDLEY,
Surgeon, Oculist and Aurist,
Has removed to his new rooms, 24 Post street between
Montgomery and Kearney.

OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great expe-
rience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the SCIENTIFIC PRESS. We transact every branch of Patent business, and obtain Patents in all civilized countries. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most reliable advice as to the patentability of new inventions. ADVICE AND CIRCULARS FREE. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior. ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN

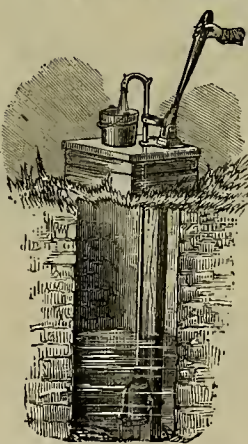


This Pan is far superior to all others in several important particulars. The grinding millers are near the center, re-
quiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the miller plate openings efficiently force the pulp directly under the mul-
ters.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher per-
centage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,
Where it can be examined and further particulars be learned; or persons may apply to the inventor and pat-
entee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long
been in constant operation.

THE AMERICAN SUBMERGED PUMP.



Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.


No. 0.	—Iron, \$15 ;	Iron Galvanized, \$17 ;	Capacity, 500.....	Gallons per Hour.
" 1.—	" 25 ;	" 30 ;	" 1,000 to 1,200.....	" " "
" 2.—	" 40 ;	" 45 ;	" 2,000 to 2,500.....	" " "
" 3.—	" 70 ;	" 75 ;	" 4,000.....	" " "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY
PACIFIC PUMP MANUFACTURING COMPANY,
318 Pine Street, San Francisco.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, N w York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 322 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M CONDEE Cashier. 1v16-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gearcut. Repairing done on very
reasonable terms, and in the best manner. 27 No. 10
STEVENSON STREET, near First, Pioneer Mills. 2v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
5v12-3m SAN FRANCISCO.


SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO



THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents.
No. 210 Front Street, San Francisco. 2v19

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 2v16qr

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**J. F. PAGES,**
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

PATENTS
Bought and Sold
ON
COMMISSION.
The Latest and Most Valuable Inventions can always
be found at the office of
WIESTER & CO.,
Patent Brokers,
17 New Montgomery Street, San Francisco.

Things and Events at White Pine.

(Written for the Press.)

Smelting Operations.

The advent of winter in this altitudinous region has somewhat checked the ardor of smelting operators, as well as the fires of their furnaces. In fact, we have now but one furnace in operation, the Alsop, at Shermantown, which has been leased by two different sets of smelters within two weeks. The Eagle furnace, at Swansea, had been leased to one Martin; and during his possession of the works, behold, they took fire and were themselves reduced—to ashes and cinders. The miners who had trusted the lessee for large quantities of ore are now whistling for their pay. The Alsop was leased by Turner & Powers, of Hamilton; and, after a week's run, the bullion was attached by a charcoal man to secure pay for the fuel used in its production; but the "poor miner," as usual, goes without his remuneration, having no money to throw away for legal means of redress. Another party is now in possession of the Alsop, who seek to smelt ore "on shares" with the miners, the "lion's share," of course, to go to the smelter; but the miners cannot now "see it." Indeed, so numerous and unscrupulous have these Jeremy Diddlers become, that it is doubtful if another pound of ore leaves the Base Range without its equivalent being left on the dump in cash.

Even the great and much-vaunted Rothschild works, at Hamilton, erected by Chicago capitalists at a cost of fifty or sixty thousand dollars, are now under attachment for charcoal, ore, labor, and even for the butcher's and grocer's bills. And yet these works turned out 600 tons of base bullion, containing an average of \$200 in silver per ton, equivalent, with the lead, to \$170,000 in value. The cost of the works, and the running expenses for 60 days, could not have exceeded \$90,000. Deducting freight charges on this bullion, the company must have made the round sum of \$50,000 in this 60 days! And yet, "the butcher, the baker, the miner and (I suppose) the undertaker," must wait for their pay until the returns are received from the dealers in metals in New York City; perhaps a great while longer.

It seems strange that the smelters cannot be satisfied with the large legitimate profits of the business, but must take every means to circumvent and defraud the producers of ore, without whose labor no furnaces could be run at all. The small pittance per ton paid for the raising of the base ore does not equal one-fifth of its value as bullion; and this is the great temptation to men without means to start smelting furnaces, and "chisel" the miner of his hard-earned remuneration.

As you observed in a late number of the Press, no smelting works should be started without ample capital, in order to enable the proprietors of such enterprises to keep their works in operation while much of their capital is locked up in ore, fuel and bullion in transit to a market. Such "enterprises" as those which have been entered upon in White Pine bear too much the character of the operations of the "confidence man" and dishonest operators generally.

Miner's Co-operation.

There was some hope that the miners of this locality would form a co-operative union to smelt their own ores, but after repeated meetings for discussion of the project, the whole matter ended in talk. Nothing can be done now but to wait events or abandon the mines. Should the Rothschild works come out from under the present cloud, and resume operations shortly, and pay cash for ore and other necessities of life, as the company boasted in the beginning they could and would, the Base Range will continue to yield large quantities of argenteiferous carbonate of lead, as heretofore.

The White Pine Smelting Works, at Swansea, of which Mosheimer is the putative father, have been sold by the sheriff, and bought in for the original company, thus disposing of sundry bills against the institution, presented by "the butcher, the baker," and the rest.

The Mills.

The two English Companies, who recently purchased the best mines on the hill called Treasure, are going ahead rapidly. The International mill of the Eberhardt Company is nearly completed. There is a rumor in circulation that this company in-

tend to erect large smelting and separating works in the spring.

The Big Smoky mill at Hamilton has put up a Brückner roasting furnace, and is meeting with great success in the volatilization of base metal in ore containing as high as 30 per cent. of lead. This will bring to mill a large class of ores rich in silver, which the smelting furnaces cannot handle with profit.

The Monte Christo mill also has a roasting furnace in operation, but of the Stetefeldt pattern. The work performed by this furnace is also of the most profitable kind. The Stetefeldt is being introduced in other parts of the state and gives great satisfaction.

The business of custom milling in this district is rapidly declining, and some of the mills will be removed to other localities. The cause is, the purchase of a number of the most valuable mines of free ore by English capitalists, and the erection by them of their own mills.

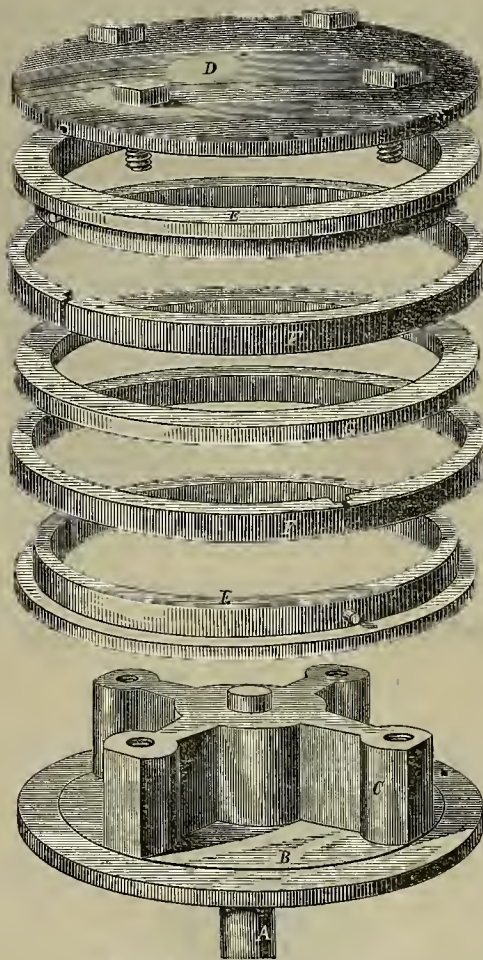
Rush to Utah.

There is a "stampede" of miners for the scene of the new discoveries of the precious

Brown's Piston Packing.

The importance of a good packing, and the great difficulty in getting a *really* good one, are well known to every mechanical engineer. The desideratum of a tight-fitting piston, without great wear on the cylinder and on the packing-rings, seems yet to be fully supplied. Thus, at the meeting of the Master Mechanics' Association, the Committee on Packing remarked in their report that "concerning piston-packing, they were unable to furnish a report of well-proved success, of full results upon any particular pattern of the many varieties now in use, etc."

We have lately received a description of a piston-packing, here illustrated, which is claimed to come nearer to supplying all the wants of the case than is done by others. This is the Brown Patent, which has been confined in its use, until very



BROWN'S PATENT PISTON PACKING.

metal in Utah. Men are going in companies of a dozen or more, in twos and threes, and as "solitary horsemen." This section will be depopulated to increase the Gentiles and make it warm for Brigham and his patriarchal institution. So we go. As old Dr. Watts wrote,

"Heedless men heedless fly
From vanity to vanity."

No doubt much of the labor in the mines of Mormondom will be as much labor in vain as in White Pine or any other mining region. But Hope always tells a flattering tale and many are deluded thereby. Yet there is no denying the fact that there are rich mines in Utah, as there are in White Pine and many another mountain country. But those who get rich from working them will be fewer in number than the drawers of prizes in the Mercantile Library Lottery.

MINER.

GOLD IN ILLINOIS.—Peoria, Illinois, is built over a gold mine, an inexhaustible gold mine, says the *Transcript* of that city on the authority of Mr. Taylor. Mr. T. is a well-digger who knows all about mining, having "conversed very often with California miners;" consequently he knows from the start that the deposits are there and that they are inexhaustible. Let every Peorian immediately proceed to turn his house into a quartz mill.

lately, to the Delaware, Lackawanna and Western Railroad. It has been used here, however, we are told (on the Cayuga Division), for three years, on 8 and 10-wheel engines, on ascending grades varying from 100 to 125 feet per mile, steam pressure on boiler, 120 pounds to the square inch, cutting off steam 16 to 18 inches, and hauling train tonnage 200 tons, exclusive of engine and tender, "not showing the least leakage after one year's wear."

This packing differs in its construction and principle from the various kinds in use; instead of applying the steam in the piston head, to force out the rings to make a tight-fitting piston, to fit the bore of the cylinder, as various kinds do, it operates the reverse. It is simply accomplished by the difference in diameter of steam fitting rings, and the diameter of cylinder. The two rings, FF, are turned three-sixteenths of an inch larger than the bore of the cylinder, and a section is cut out sufficient to allow the ring to come together and fit over the pins on L-shaped rings. The details of construction are shown in the engraving. The piston rod, A, is attached to a plate, B, upon which is cast a spider, C. To this spider is bolted a counter plate, D. The ends of the four radial arms of the spider,

B, are turned to a true circle, the center of which is in the axis of the piston rod. Between the plate, B, and the counter-plate, D, and over the ends of the spider arms are placed the rings, E, F, G, in the order shown. The rings, E, have an L-shaped section, and over their vertical projections the cut rings, F, fit, a pin on each of the rings, E, fitting into a recess in each of the cut rings, F, so as to keep the cuts in a constant position to break joints. This gives a packing, it is claimed, with the least friction and wear, combined with great durability; while the wear is distributed equally on all parts of the cylinders, thus tending to keep it true.

The packing can be applied to any piston-head locomotive or stationary engine without any alteration. The inventor says: All I ask is, give it a trial and let it prove its own merits. It was patented by Mr. Francis A. Brown, Ithaca, Thompsons county, N. Y., to whom, or to Wiester & Co., 17 New Montgomery street (Grand Hotel), San Francisco, apply for further particulars.

A Miners' Convention.

J. Berton, Vice-Consul of France "having been authorized by a number of leading English and French capitalists to investigate and report, in his official capacity, the standing and resources of mining companies in California and other Pacific States; also, to devise some plan to check the sale of bogus mines abroad, and thus to protect foreign interests, while promoting at the same time the interests of bona fide and legitimate mining enterprises," has issued a call, inviting miners and capitalists to attend a Miners' Convention to be held at Sacramento on the 30th inst. when a Miners' Protection Union is to be formed. "The object of this institution shall be to exclude from foreign as well as home markets all the accumulated worthless mining stock; to restore the American, more particularly the Californian, credit abroad, by offering to foreign capitalists desirous of investing in mining enterprises, a reliable channel through which they will obtain a most safe and profitable investment."

Could some such bureau be formed and supported by well known persons in whom the public had confidence, and who were fully qualified for the position, it would be an excellent institution, not only as regards the interest of the State, but also with reference to the interests of the individuals composing it. But we are afraid that the present plan will not accomplish much. It has been advertised to a limited extent only,—but few persons know who have authorized the call and who will respond to it. Apparently anybody can join the Union, and every one who does so with a mine for sale will insist that *his* property is the best. We have no guarantee that unscrupulous persons will not get the management, on that responsible parties will have the conduct of affairs; and there is great danger of internal discord in such a combination. Suppose the institution is once fairly going, still its chances of a long life would be very doubtful. One mistake would damage its reputation before the general public, and endanger its existence. The American Bureau of mines at New York was an institution which had a similar purpose, to a great extent. Yet it was unable to live, although it contained several excellent men.

We have several mining engineers in this State who make it a business to report on mines, and who have acquired a solid reputation in their business. If these gentlemen could be induced to combine forces and start such a bureau, it might succeed; yet we doubt whether they would be willing to take such a step. While we should like very much to have such an institution exist as M. Berton proposes, yet we cannot find sufficient grounds to lead us to believe in its future success. We should be very happy to be disappointed in our expectations.

By order of the Board of Trustees.
Jan 7 T. F. CRONISE, Secretary
Office, No. 402 Montgomery st., San Francisco

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crasher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-47

THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1863.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Lloyd Tevis, Wm. Alford, Wm. Norris, Joseph Moore, Chas. E. McLane, John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.UNION IRON WORKS,
Sacramento.WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OFSTEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.And all kinds of Mining Machinery.
Front Street, between N and O streets,
1861 SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO

EUREKA FILE WORKS.

311



Bet. Fremont and Beale,

MISSION ST., SAN FRANCISCO.

T. G. DURNING, Superintendent.

New Files of every description made to order. Files re-cut and warranted equal to new. Reaper and Mower sections, bars, etc., made to order at short notice. Orders from the country promptly attended to. 22v22tf

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one of the safes, containing Miller & Haley's books and papers, stood the test perfectly,—to whom all interested are referred. This safe is built at the

CALIFORNIA TOOL WORKS,

143 Beale Street, bet. Mission and Howard. All kinds of Edge and other Tools made to order. Agricultural machinery repaired. Job grinding and polishing by steam. All work warranted. Orders promptly attended to. 22v22-3m J. WEICHBART, Proprietor.

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco. 2v21-tf

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



This device is just what its name indicates. As a Kitchen Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pinners, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pinners and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

Logan's Rubber Back Lash Spring

Patented May 17, 1870. The attention of Manufacturers and Mill Owners is respectfully called to the above valuable invention for

Preventing Back Lash in Mill Gearing.

No argument is deemed necessary to convince an intelligent Miller of the importance of preventing back lash, as it is well known that both the quantity and quality of the flour depends largely upon the steadiness of motion of the Burrs. Whenever the motion is communicated by an engine having two points in the revolution of the Fly-wheel where no power is applied, there must be an unequal motion, and consequently more or less back lash. By the use of a very heavy fly-wheel or a high speed, this inequality of motion may be diminished but it cannot be entirely prevented, and more steam will be required than with a lighter fly-wheel or slower speed. By the use of

Logan's Patent Rubber Springs,

the Back Lash is entirely prevented. The pinion being loose upon the spindle, and the connection between them being by the springs, the action of the springs keeps the cogs of the pinion at all times firm against those of the driving wheel, while a continuous forward pressure is given to the spindle and through it to the Mill-Stones. The Right to the Pacific Coast is placed in our hands for sale at a very low price. Parties interested will please write for descriptive circular or call at our office and examine the model. A large number have already been sold and put into use in the Eastern States, and three are in daily use in a flour mill in this state. Parties buying territory will be furnished with the springs at manufacturing cost from the Factory in Illinois, or will be furnished with a sample to manufacture from free of charge.



New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufacturing cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

New England Spring Bed.

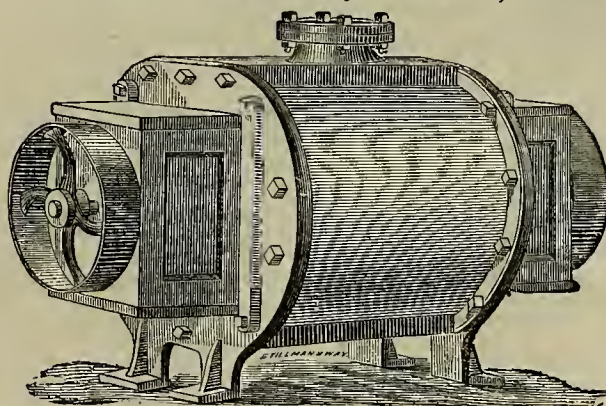
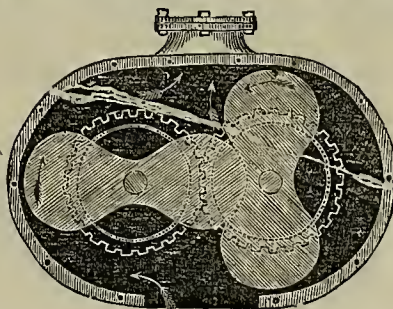
The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

WIESTER & CO.,
17 New Montgomery Street, (Grand Hotel), San Francisco.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

THE

CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

DOUBLE PLUNGER STEAM PUMPS,

FOR DRAINING MINES.

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES. 3v21

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and 15 Fremont Street, near Market, San Francisco. 1v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rodder Braces, Hinges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED, V. KINGWELL.

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth,
W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS

AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-4y

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOHSE, Secretary.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates. **CHAS. W. WELF.**
No. 132, 3d Street, S. F.

NEVADA METALLURGICAL WORKS,
19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHARDT.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

HENRY G. HANKS,

Assayer and Chemist,

AND DEALER IN

Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide. Apply to
J. J. BLUXOME,
26v21-3m N. E. cor. California & Sansome streets.

Baltimore Copper Company.

Highest Price paid for Copper, Ore. 15 pr. ct.
Regulas, and Bars.

DANIEL MEYER, 210 Pine Street,

23v21-3m SAN FRANCISCO.

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

GEO. W. SMILEY,
24v21-3m 424 Montgomery St., San Francisco.

MILLER & HALEY'S MILLS,

BERRY STREET,

Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Frémont street, we have removed our business to the above locality, where the manufacturers of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.
Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.
19v21-3m
MILLER & HALEY,

R. H. McDONALD & CO.,

WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3m S. W. Cor. Market and First streets.

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,

No. 415 CALIFORNIA STREET.
26v20-qy



FOR SALE BY THE

HARDWARE TRADE.

YALE LOCK M. F. G. CO., N. Y.

Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.

FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS.

POST OFFICE LOCK-BOXES,

CAST BRASS FRONTS, GLASS DOORS,

PRISON LOOKS,

UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.

OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of

GENERAL HARDWARE,

Table and Pocket Cutlery, Eng. and Am. Files Saws &c.

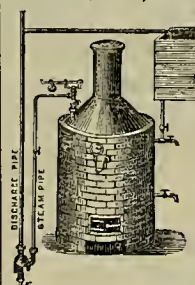
VARNISHES AND JAPANS.

N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

Machinery.

STEAM JET PUMP.

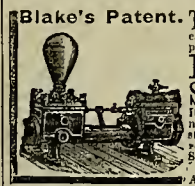
Blakess & Williams' Patent, for
Water, Oils, Acids, Etc.



This best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine. We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—OSCAR V. GERZABEK, 117 California St., San Francisco; KEEF & BARGION, Stockton. 21v21-tf



THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's Patent Steam Pump. It is simple, compact and powerful, needs no expert to run it, and will start at any point. It is warranted positive under all circumstances. Send for a circular. BERRY & PLACE,
Agents, 112 & 114 California St., San Francisco

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

The Risdon Iron and Locomotive Works,

WATER PIPES,

—FOR—

Cities or Mining Purposes,

CAN BE HAD AT THE

RISDON IRON AND LOCOMOTIVE WORKS,

San Francisco.

They have just completed 70,000 feet of 30 inch pipe, maximum pressure 375 feet, 12,500 feet, 300 feet head; 9000 feet 225 feet head, and 5000 feet of 22 inch pipe 300 feet head.

THE MACHINERY

—FOR—

Shearing, Punching, and Riveting,

—HAS BEEN—

Expressly Designed

for working Iron for pipes, and enables such work to be

Done Cheaper and Better,

than with ordinary machinery.

The Risdon Iron and Locomotive Works,

Are prepared to contract to make and lay pipe of any dimensions, and over depressions of any depth,

GUARANTEEING THE SAME.

The Risdon Iron and Locomotive Works,

Also do all kinds of

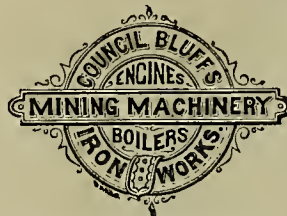
Iron Foundry Work, Steam Engines,

Quartz Mills and Mining Machinery.

LOCATION OF WORKS,

S. E. Corner Beale and Howard Streets.

1v22-2-clm



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,

costing no more and wearing one half longer than any shoes before introduced.

Bolthoff's Stem Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late
Improvements.

Send for prices and information. Address

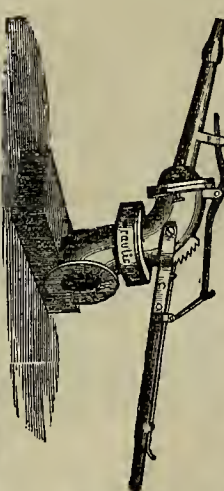
O. F. HENDRIE, Prest. R. J. CORY, Secy & Treas.

1v22-3m

Council Bluffs Iowa.

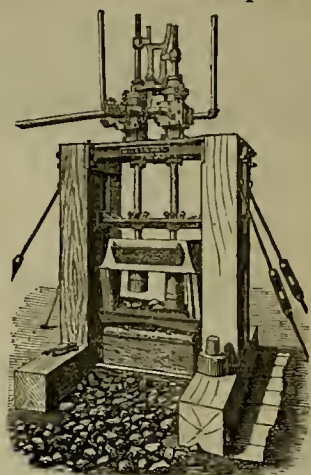
HYDRAULIC CHIEF.

Fisher's Knuckle Joint and Nozzle is the best Hydraulic Machine in use. Mechanisms manufactured to order to throw from one to a seven foot stream. Hydraulic Machine No. 1. Manufactured and published by R. H. & J. C. Fisher, that they have sales pending in the United States District Court, which involves the working principle of my HYDRAULIC CHIEF. Is false. I caution all miners to beware of the efforts of the said Oregans to intimidate my patrons or effort money from them by false representations. I have a full patent for my Hydraulic Chief, granted Dec. 20th, 1870. No. of Patent, 110,422.



2v22-1ms

F. H. FISHER, Nevada City.

THE WILSON
Patent Steam Stamp Mill

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquires of

FURMAN R. WILSON,

San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

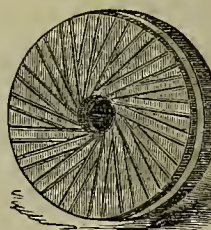
F. R. WILSON,

20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,



Celebrated Dutch Anchor brand Bolted Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz. 2v22-1yins

41 First St., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at this

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DEYNSTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. Best means yet discovered for saving fine particles of Gold. 20v21-tf

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street, 14v21-1y San Francisco.

DEWEY & CO.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

NEVADA AND CALIFORNIA PROCESSES**SILVER AND GOLD EXTRACTION.**

FOR GENERAL USE, AND ESPECIALLY FOR THE MINING PUBLIC OF CALIFORNIA AND NEVADA.

With full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores.

BY GUIDO KUSTEL.

Mining Engineer and Metallurgist, former manager of the Ophir Works, etc.

Containing 350 quarto pages, and illustrated with accurate Lithographic Engravings. 1863. Sold by Dewey & Co., Publishers SCIENTIFIC PRESS, San Francisco.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator. Once in hand it is held for trusty reference by the owner and highly recommended to others who do not possess it. Price \$5 (coin) bound in cloth, \$6 bound in leather. Address DEWEY & CO., SCIENTIFIC PRESS OFFICE, San Francisco.

Central Pacific Railroad.

Passenger	Express	JAN. 24, 1871.	Express	Passenger
Sunday	Train	Daily.	Train	Sundays
except d.	except d.		except d.	except d.
4:00 P.M.	8:00 A.M.	San Francisco.	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.	5:12 P.M.	11:58 P.M.
	9:30 A.M.	San Jose.	5:40 P.M.	
7:58 P.M.	12:10 P.M.	Stockton.	1:46 P.M.	8:35 P.M.
8:35 P.M.	2:10 P.M.	Sacramento.	11:15 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.	9:10 A.M.	
	8:00 P.M.	Sesma.	4:20 A.M.	
	2:20 P.M.	Sacramento.	11:45 A.M.	
	5:25 P.M.	Colfax.	8:45 A.M.	
	1:15 A.M.	Elko.	1:00 A.M.	
	9:10 A.M.	Winnemucca.	4:05 A.M.	
	12:00 M.	Battle Mountain.	1:25 P.M.	
	3:10 P.M.	Carlin.	10:15 P.M.	
	4:40 P.M.	Elko.	8:45 A.M.	
	1:35 A.M.	Kelton.	10:10 A.M.	
	6:10 A.M.	Ogden.	5:00 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6:50, 8:00, 9:10, D 10:20 and D 11:10, a.m. 12:00, 1:50, D 3:00, 4:00, 5:15, 6:45 and B 11:30 p.m.
 LEAVE BURLINGTON, B 5:15, B 6:30, 7:40, 8:50 and 10:00 a.m. 1:20, 2:40, 4:55 and 6:25 p.m.
 LEAVE OAKLAND, B 5:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 p.m. 1:40, 2:50, 3:50, 5:05 and 6:35 p.m.
 ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:20, E 9:00, B 9:30 and E 11:30 a.m. 1:30, 4:00 and 5:30 p.m.
 LEAVE HAYWARD, B 4:15, B 7:00, E 8:30, B 9:00 and E 11:00 a.m. and 3:25 p.m.
 LEAVE ALAMEDA, B 5:15, B 7:35, E 9:06, B 9:36 and E 11:36 a.m., 1:35 and 4:05 p.m.

Bundays excepted. E. Sundays only. D. To Oakland only. O. To Fruit Vale only.
T. H. GOODMAN, A. N. TOWNE,
 Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

Pacific Insurance Company,
 No. 422 California St.,
 San Francisco.
 Cash Assets \$1,750,000.
Fire and Marine Insurance.

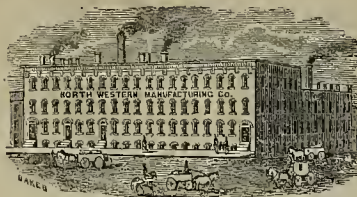
J. HUNT, President.
 WM. ALVORD, Vice-President.
 A. J. RALSTON, Secretary.
 A. BAIRD, Marine Secretary.

RIDER'S Automatic Cut-off**Vertical Engines**

Manufactured by the Albany St. Iron Works, NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-ly16p**NORTH-WESTERN MANUFACTURING COMPANY.**

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,

Brass and Iron Goods for Steam and Gas Fitters and Engine Builders,

Cast Iron and Malleable Iron Fittings and Castings.

Steam Warming and Ventilating apparatus for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

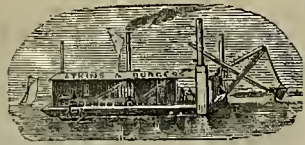
MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR, STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

GENERAL MACHINERY,**CASTINGS**

MADE TO ORDER.



Jobbing Promptly Attended to.

3v22-3m

THE BEST PAPER

—AND THE—

BEST INDUCEMENTS!

This Quarter's 13 numbers SENT FREE to all subscribers before Dec. 25, 1870, for next year's

MOORE'S RURAL NEW-YORKER,

THE GREAT ILLUSTRATED

Rural and Family Weekly.

This is not only the Largest, Best and Cheapest, but by far the Largest-Circulating Journal of its Class! National in Character, Ably Edited, Superbly Illustrated and Printed, it is the

BEST AMERICAN WEEKLY!

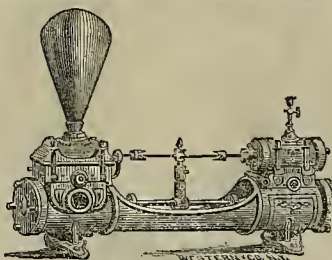
It is the standard authority on all branches of Agriculture, Horticulture &c. As a Literary and Family paper it is a favorite from Canada to California. Indeed Moore's RURAL has no rival in its sphere, and is the largest illustrated Journal on the continent—each number containing sixteen Five-Column Pages, (double the size of most papers of its class).

A NEW FEATURE.

Among recent accessions to the RURAL's unequalled Editorial staff is that of Hon. T. HART HYATT, of Cal., as editor of the Pacific Coast Department—a new and valuable feature. By prompt mailing and rapid railroad transit, the RURAL now reaches the Pacific slope about the time of its date.

TERMS, INDUCEMENTS, ETC.

TERMS—\$3 a year of 52 Numbers, and only \$2.50 in clubs of ten. This Quarter's 13 numbers sent FREE, as offered above. Our club inducements for 1871 are unprecedented. Specimens, Premium Lists, &c., sent free to all forming clubs,—and we want a live Club Agent in every town. Address

D. D. T. MOORE,
41 Park Row, New York.**A. L. FISH, Agent, KNOWLE'S PATENT STEAM PUMPS.**

Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

1000 Farms

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Ranch," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery St., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-5ms

W. T. GARRATT & CO. CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells, TAVERN AND HAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6cft
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.**HUNTINGTON, HOPKINS & CO.,**

—IMPORTERS OF—

HARDWARE,

BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting,

Hose, and

RAILWAY SUPPLIES.

—ALSO AGENTS FOR—

ORIENTAL POWDER CO., OF BOSTON,

SAN FRANCISCO CORDAGE COMPANY

54 K Street, Sacramento.

7v20-ng

N. W. SPAULDING,

Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market

MANUFACTURER OF

SPAULDING'S**Patent Tooth Circular Saws.**

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

PACIFIC**Rolling Mill Company,**

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles

and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron 9v143ms

JOS. THORNHILL,**BRICKLAYER AND CONTRACTOR.**

Particular attention paid to all kinds of Fire Work, such as Bolders, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 2v21-3m

O. J. KINO, T. D. KEMBALL, P. D. CODE.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,**KETCHUPS, SAUCES,**

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,

Between Jackson and Pacific, San Francisco. [16p]

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOB,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 5v20-ly16p1

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES**George O. Whitney & Co.,**

Nos. 317, 319 and 321

PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

GIANT CEMENT. GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT. MINERS' RUBBER CEMENT.**New Patent Law.**

The New U. S. Patent Act of 1870 will be sent FREE on receipt of postage stamp to inventors and patentees, by DEWEY & CO., publishers, patent agents and engravers. San Francisco.

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEB. 4, 1871.

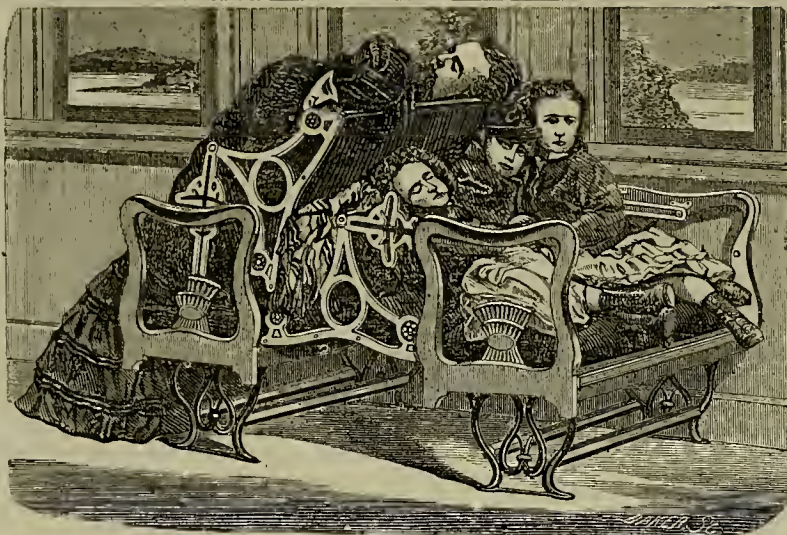
VOLUME XXII.
Number 5.

Blood's Patent Car Seats.

We of the present generation apparently do not have such stiff backs as our ancestors had. Many of us can remember how our grandmothers sat erect in their chairs, disdaining to rest against the chair-back. Theoretically, we don't know but what they were more correct in the principle than we are, but personally we always select that chair whose back presents the most comfortable rest.

Had these ancestors of ours been as much addicted to riding in railroad cars as we are, we think they might have modified their action, and sought to relieve their weary spines. But this last has hitherto been difficult of accomplishment. The straight backed seats become very tiresome, when one is jolted along for a considerable length of time, and how to secure a comfortable position has heretofore defied the most persistent efforts of the traveler.

The Chicago Railway Gazette describes these efforts well. It says: An erect sitting posture is quite comfortable at first,



VARIOUS VARIATIONS OF BLOOD'S IMPROVED CAR SEATS.

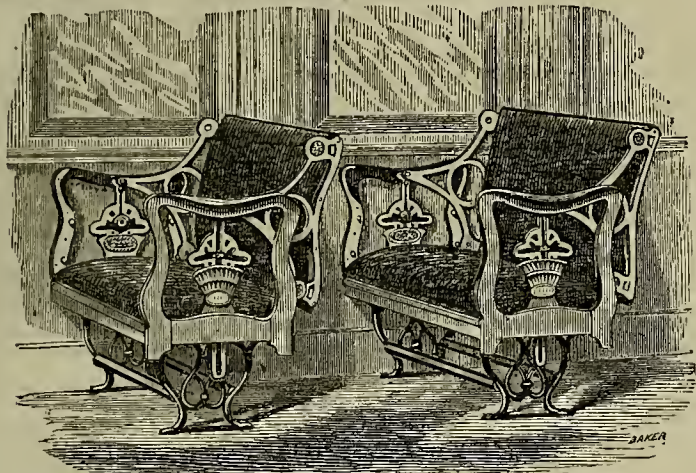
with sincerity, "Bless me, this is pleasant, riding on a rail."

affected instantaneously, allowing an easy, half-reclining position. Another shows

ones, can be assured,—an important item.

These changes are all made without trouble, by graduating the movement of the shifting irons to the desired position, and securing the wished-for arrangement by means of a lock attached to the shifters. All these are so simple that they can be effected by any one, without the necessity of calling on the conductor.

The adoption of this improvement does not involve any large expense. All that is necessary is a simple change of the irons on which the backs of the seats revolve, and this is effected at a cost of about three dollars a seat. The device being so important an improvement and the expense of introducing it so trifling, we naturally find it adopted on many routes; for any railroad, to succeed, must provide as well as possible for the comfort of the traveler. Such a contrivance on our overland railroad would be a great addition; and it would be in excellent place in the Emigrant cars. A small extra sum might be charged for these seats and thus much comfort could be secured at a small expense.



BLOOD'S IMPROVED CAR SEATS.

but the continual jar tends to render it monotonous and almost impossible to maintain, and here the traveler finds himself reduced to a choice from a few attitudes which vary considerably in their elegance but very little in their comfort. He slides slowly down until it is necessary to brace his knees high up against the back of the forward seat and here, in the shape of a horizontal interrogation mark, he finds a "brief bitter bliss" until his breaking neck and aching limbs compel him to resign it. The most ingenious traveler is seldom able to suggest to himself any improvement on these two luxurious positions, unless he be fortunate enough to secure, and keep, a double seat, in which exceptional case he can prop himself up with his baggage and devise a variation of his agony.

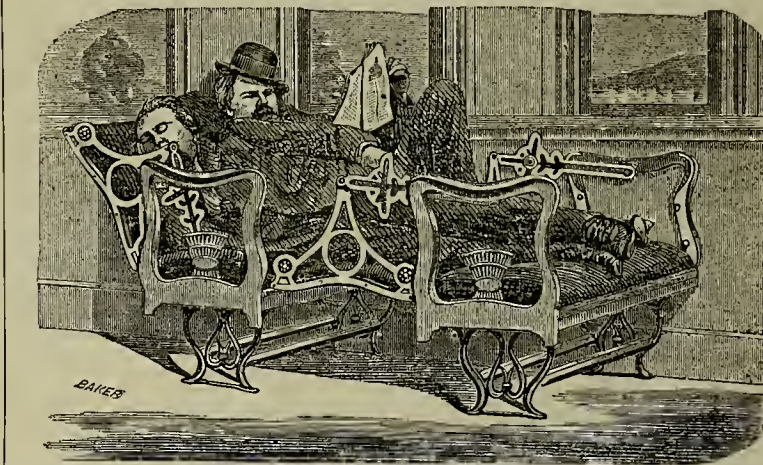
There comes now to our relief, a St. Louis inventor, whose device really seems most promising. This gentleman has furnished an arrangement by which one can obtain that variety of postures which is so necessary for comfort on a long trip. It now may be possible for the traveler to exclaim

Our engravings illustrate this device and present some of the variations which can be attained thereby. One illustration represents the seats in the common attitude. Another shows a change which can be effected



HALF RECLINING POSITION.

be attained thereby. One illustration represents the seats in the common attitude. Another shows a change which can be effected



AS A SOFA.

Mr. John H. Blood, of St. Louis, Mo., a brother of the patentee and part owner of the patent, is authorized to dispose of rights and make contracts with any road in the United States, for the introduction of their improved car seats.

BORAX IN NEVADA.—The borax deposits in Nevada are attracting considerable attention. We see it stated that they are thickly distributed over an area of 100,000 acres; also that a New York house is about to erect works, under lease, on one of the deposits, and that agents from London are coming in the spring for exploration.

HOOS TO JAPAN.—A notable article on export to Japan, by the steamer of the past week, was a lot of hogs, 1,000 of which have been sold for shipment. A part went by steamer, the rest will go forward by sailing vessels.

THE FIRST SUGAR REFINERY ever constructed in Central America, has recently been started by the Messrs. Deshon on their sugar plantation near Corinto, in Nicaragua.

MECHANICAL PROGRESS.

PEAT FOR GAS.—T. H. Leavitt of Boston, of whom the *Gas Light Journal* speaks as a recognized authority upon the subject, and from whose articles upon various peat uses we have more than once quoted in the Press, contributes an article to the journal aforesaid for Jan. 16th from which we take this extract: "It is well known that large quantities of peat are used for fuel in Paris; some concerns employing several hundred men in its production; and that by one or more of the gas companies outside of the city, it has been used for a considerable time for the manufacture of illuminating gas. A commission charged with the duty of investigating the matter for practical purposes made report, of which the following are, in substance, some of the items: The illuminating power of peat gas exceeds that of coal gas as 342 to 100. The manufacture of gas from peat is more simple than from coal. The peat, if put into an iron retort, and heated to a low red heat affords immediately a mixture of permanent gases and vapors, which condense into an oleaginous liquid, which two products separate on cooling. The oil is collected in a vessel, and the gas passes into a gasometer. This carburetted hydrogen, however, is of very low illuminating power. The oil, which is a viscous, blackish liquid, of strong odor, is subjected to a new distillation, and resolved wholly into a permanent gas, and hydrogen very richly carburetted. This mixture is strongly illuminating, yielding a flame six or eight times brighter than the first, and of remarkable brilliancy. The two are then mixed, and a gas of intermediate character obtained, which is delivered for consumption. A mean of five determinations gave for a burner of peat gas a light equivalent to 23½ candles, and the same burner with coal gas gave 6.3-10 candles. The illuminating power of the pure oil from peat as compared with gas from coal is as 756 to 100. The purification of peat gas is much more easily accomplished than coal gas. * * * From these data, it would seem that inducement is offered for our gas companies to attempt the utilization of peat. Moreover, it is known that some of our own peats are far superior for gas purposes to any on which are based the reports referred to. Many of our large cities are especially favored in this respect. Our Atlantic coast is abundantly supplied; Cape Cod is full of it; nearly one half of Nantucket is peat of excellent quality, and Martha's Vineyard affords a peat almost without limit, which as adapted for this special purpose, is probably unsurpassed by any deposit in the world, while vessels can come within fifty rods of it, loading at the minimum of cost."

COMPLETION OF THE GREAT GUN.—The London *Mechanics' Magazine* says: "On Tuesday, Dec. 13th, 1870, the final operation in the construction of England's greatest gun was successfully performed at the Royal Gun Factories, and the monster cannon now only requires to be vented and proved. The tube of the gun, which is about 16 feet long, was brought out of the factory in which it has been rifled, and fixed, muzzle downward, in a pit, under the most powerful crane which the Royal Arsenal possesses. The heavy breech-piece—a mass of iron weighing 15 tons, and in shape something like a tailor's thimble—was heated nearly to redness on an adjacent gridiron, in order to expand the metal, and was carefully lifted and dropped like a cap over the breech of the perpendicular tube. When cold, the caliber of the breech-piece was slightly less than the diameter of the tube, but the heat expanded it so as to allow nearly ¼ inch free play between the two, the cooling being afterwards assisted by jets of water. The gun weighs 35 tons 7 cwt.; the diameter at the breech is 4 feet 8 inches, and at the muzzle 1 foot 9 inches. The bore is rather less than 1 foot, and is rifled on the "Woolwich" system. It consists of an inner tube of steel tempered in oil, and incased in massive folds of wrought-iron in accordance with Fraser's double-coil system. With a gun so strongly built it is thought possible to throw a shot or bolt 700 lbs. in weight, and to pierce iron armor 15 inches in thickness, the ordinary charge of powder being calculated at 120 lbs. The shot will probably be three times the length of its diameter. The estimated cost is £2,500."

SEWING MACHINES.—"The number made by twelve principal companies during the past year amounted to 320,669, which, at the average price of a first-class machine, say \$75, aggregated \$24,050,170. The first-class American sewing machine is to be found in all quarters of the world, and the supply comes principally from this city and Boston. There are many cheap machines which are not counted in these figures; also many cheap imitations manufactured in England and on the Continent which are sold as of American make. Germany, in particular, does a very large business of this kind, Hamburg having no less than six large factories running, and finding a market principally in Russia. Notwithstanding this competition, the machines sent from this country command high prices, on account of excellence in workmanship. The largest number made by any one concern in a year was 86,781. As the cost of manufacturing good machines varies from \$12.50 to \$60, and the prices at which they are sold range from \$60 to \$350, the profits of the business are enormous."—*Sci. American*, Jan. 7th.

"COMPOSING" MACHINE.—Under this name the New York *Tribune* describes a new apparatus which is operated as follows: "The letters of the alphabet are arranged in regular order in a type-head two inches square, and are operated upon by keys, as in a piano. When the keys are touched, the type-head moves to its position, and action is had upon whatever letter is touched, the type moving downward a prescribed distance, and making a printed impression on transfer paper. The platen on which the paper is laid is moved by a feed-wheel, and the spaces between the lines are produced by lateral motion by means of a ratchet-wheel. The impressions are finally transferred to a zinc plate, and printed by a lithographic press. In place of transfer paper a mold of clay or wax may be used to receive indentations, from which a stereotype cast can be obtained."

HORSE-SHOE ROLLS.—The following description of Reese & Graff's machine at the Fort Pitt Iron Works, Pittsburgh, is credited by the *Iron Age* to "a local paper": "The machine has two horizontal rollers and one vertical. The horizontal are not exactly circular, their form being so proportioned that in every half revolution they gradually tighten down on one part of the iron, thereby giving thinness to the parts intended for the toe and thickness to those for the heels. The upper roll is provided, in a portion of its face, with two tongues which press the creases for nails; the lower with a sloping flange which produces the bevel. The vertical roll is to give the proper width. It is in the shape of an ellipse slightly pointed at either end of its longer axis. At its every half revolution the side of one shoe is compressed. Thus the shoes are at one rolling so complete that naught remains except to cut, punch and bend. We amused ourself in calculating the capacity of these machines. There are two trains. Each makes two shoes at every revolution. Their ordinary speed is 180 revolutions per minute. This would make 720 shoes every minute, or 1,036,800 daily. They are never run to their full capacity, however, owing to the fact that Messrs. Reese, Graff & Co. have not the means of heating more than 20 tons of horse-shoe iron daily."

LARGEST LITHOGRAPHIC PRESS IN AMERICA.—The *Scientific American* describes this machine,—"the work of Hughes and Kimher, of London,—and after detailing the steps of the old process of lithographing with the "scraper press", says:—"Now on the cylinder press every detail of this process is in its essential features performed automatically, except that the pressure is obtained by the weight of a heavy roller and powerful compound leverage connected therewith, which roller carries the paper and rolls over the surface of the stone, in lieu of the roller, tympanum, and scraper, above described. The moistening of the stone, and the inking of the plate, are done by ingenious self-acting devices which perform the work in the most thorough manner, the dampening of the stone and the inking being done two or more times for each impression, as may be desired. Any kind of work is performed better than it can be done by the old means, and from twenty to thirty times faster. The press from which our engraving has been made will print blocks 60 by 40 inches, and as good lithographic stones of this size are difficult to obtain and handle, zinc is now much used as a substitute. * * A peculiar advantage of the cylinder over the scraper, is that the cylinder wears the stone much less than the scraper, so that from 20,000 to 30,000 impressions may be taken from a single transfer."

SCIENTIFIC PROGRESS.

THE ECLIPSE OF DEC. 22d.—Reports are to the effect that the weather was more or less unfavorable for observation at nearly all the stations; and at Oran, Algiers, where were Prof. Tyndall, Dr. Huggins, and several other notables, fully equipped with every possible instrumental aid, it was still more unpropitious than at the European stations. *Nature* for Jan. 5th gives the report from that place as follows: "The morning of the 22d broke very doubtfully, heavy driving clouds obscuring the sun. The party were, however, all at their posts betimes, and arranged their various instruments long before the predicted instant of first contact. The clouds obscured the sun at this particular time; but soon, through a rift in them, the dark limb of the moon was seen encroaching on the sun's disc. Observation after this became very trying, as it was only possible at distant intervals to glimpse the progress of the moon, as she gradually advanced in her path. Spectroscopic observation, or even polariscope observation, was practically impossible. Finally a glimpse was caught of the sun some eight or nine minutes before totality as a very thin crescent, and then every clink and cranny in the clouds closed up, and one dense and impenetrable pall covered the earth. Nothing remained now but to go out of the tent and observe the effect in the open air. It was certainly very striking. As the moment of totality approached, the western sky turned of an awful livid purple, the clouds over head assuming a black tint. As the shadow swept over the earth, the eastern sky became obscured, while the western horizon lighted up like the grey dawn of a dull autumn morning. At no time, however, during the totality, was it difficult to see the seconds on the face of a watch. The light was that of a cloudy evening, about an hour after sunset. One curious effect was observed, the apparent contraction or closing in of the celestial vault. Speedily, however, the dawn in the western horizon spread over the heavens; but the sun did not reappear again for at least half an hour after totality. M. Jausen, the French astronomer, who escaped, at the risk of his life, with his instruments in a halloo from Paris, was stationed on a mountain some seven miles from Oran. He can have seen nothing whatever of the phenomenon which he had braved so much to observe."

ELECTRO-MOTIVE FORCE OF METALS IN CONTACT.—E. Edlund in *Poggendorff's Annalen*:—"When an electric current traverses the point of junction of two different metals, a quantity of heat is absorbed or produced per unit of time which is proportional to the strength of the current and to the electromotive force acting between the metals. The author refers on this point to a previous paper; in the present communication he endeavors to estimate the comparative electromotive forces acting between different pairs of metals by the heating or cooling effects of a current of measured strength. The junction formed of each pair to be examined was enclosed in the bulb of an air thermometer, and the difference between the expansions produced when the current passed in opposite directions, was measured. The electromotive order of the metals deduced from the results did not agree with the order given by electroscopic observations but it agreed with the thermo-electric order, though the electromotive forces were not found to be proportional in all cases to the thermo-electromotive forces between the same pairs of metals."

ORIGIN OF GRAPHITE.—Prof. Wagner ascribes it to the decomposition of cyanogen and of the cyanides. The black mass which sometimes separates from hydrocyanic acid, on being washed in nitric acid and dried, is found to consist of scales of graphite. Dr. Wagner infers from this that the artificial graphite that is formed on the cooling of many varieties of iron, has its origin in the same source, namely, cyanogen. It is not the carbon which is held in solution in the melted iron, but the cyanogen compounds, that give rise to the graphite. In the manufacture of soda by Le Blanc's process there is always a quantity of graphite formed, which is derived from the decomposed cyanogen compounds, and in some of the large establishments of Bohemia practical application is made of this incidental product in the manufacture of lead pencils.—*Eng. & M. Journal*.

THE OTHER SIDE OF Eozoön.—Our issue of Jan. 21st contained a paragraph from the communication of T. M. Reade in *Nature*, in regard to the mineral origin of this fossil. Prof. W. B. Carpenter answers Mr. Reade in *Nature* of Jan. 5th. In reference to the point made in the article alluded to, viz.,—that Eozoön has been obtained from metamorphosed rocks only, Prof. C. says that that peculiar structure "is most characteristically displayed in those portions of the serpentine limestone of the Laurentian formation which have undergone the least metamorphic change." The fact that metamorphic rocks have been found with apparently similar structure, does not affect the question of the organic nature of Eozoön. Prof. Carpenter shows that even now, at the deep-sea bottom, the sardonic substance of various organisms is being gradually replaced, as it decomposes, by silicious compounds precipitated from sea-water. We quote: "Dr. Duncan has shown that a like process is taking place at the present time in the case of corals; their animal substance being replaced by silicates, whilst their calcareous skeleton remains unchanged. No mechanical agency can account for this replacement. It is not effected by the percolation of silicates in solution, under the "hydrothermal" action which Mr. Reade (following the lead of Messrs. King and Rowley) invokes as having been concerned in the production of the Canadian Eozoön. And I am justified by the opinion of several of our ablest chemists and mineralogists in the assertion that no agency save a progressive chemical substitution can account for the production of these wonderful models; the silicates being precipitated from sea water by the decomposition of the sardonic substance which they replace and represent. Whether or not this doctrine be accepted, it may be confidently affirmed that whatever be the agency concerned in their production, the filling-up of the cavities of the calcareous skeleton of Eozoön may be fairly accounted for in the same manner."

MAYER ON ELECTRO-MAGNETISM.—Dr. A. M. Mayer has an article in *Silliman's Journal* for September, entitled "Researches in Electro-Magnetism." *Nature* gives of it the following abstract: "The author has devised a very accurate method of determining the relative value of electro-magnets to replace the one usually employed, which consists of measuring the deflection of a magnetic needle which is produced by the action of the electro-magnet. The author found that this process was liable to error in consequence of the difficulty of keeping the current absolutely constant, resulting in a continual motion of the needle. These difficulties were obviated in the following manner: A line eight feet long and divided into fractions of inches was drawn on a table, the latter being so placed that the line was at right to the magnetic meridian; a compass, with a needle nearly six inches long, was placed on this line, and a helix was fixed at each extremity of the line. These helices were traversed by the same current, a tangent galvanometer being placed in the circuit. In this way the needle was influenced by two magnets acting in opposite directions and excited by the same current, and if any deflection of the needle was observed, it must have been due to a difference of power of the magnets. If this occurred the needle might be brought to 0° by moving it from the stronger magnet. A series of experiments was made to determine the variation of the intensity of the force with a change of distance, by placing the needle opposite an electro-magnet and noting the deflection produced when the instruments were at different distances from one another; it was found that in the apparatus employed the intensity varied inversely as the 2.7404 power of the distance from the core. Dr. Mayer has determined the power of cores made of insulated and of non-insulated soft iron wires, and finds that the insulated core is slightly the weaker. He has also measured what thickness of tube is equal to a solid core of the same diameter, and has found that a solid cylinder ten inches long and 1.68 in diameter may be replaced by a tube of the same length and of a thickness of 1-6 of the diameter. This relative size does not appear to be constant for cores of all dimensions. A longitudinal slit in the tube does not diminish its power; in fact, Dr. Mayer seems inclined to think that it facilitates its magnetisation. By placing a helix inside a soft iron tube a magnet is produced with poles the reverse of those of the coil, or of a bar placed within the helix; this supports Ampère's theory of magnetic currents."

CORRESPONDENCE.

Bound East—At Chicago.

[Written for the PRESS.]

Steam Dredges for a Ship Canal.

I have wandered all about this great Chicago, and although I have been frozen by the bitter winds from the lake, yet I have been thawed out again always by the warm hospitality of the people. I propose describing a few places which I have visited.

One of my first calls was at the Vulcan Iron Works, the property of Messrs Atkins & Burgess. Here I saw fine steam engines, cranes, pile drivers, wind mills and dredging machines of every size, power and kind. The works employ 75 to 100 men constantly, and have a high reputation, gained partly by the superior practical ability of Mr. Burgess, and partly by the geniality and evident financial ability of Mr. Atkins. I saw much of interest, but would speak chiefly of the steam dredges which they have built for a canal in Louisiana.

It speaks well for the reputation of the gentlemen, that they should be preferred by a New Orleans company to all their Eastern competitors. It seems that much saving of time and future expense will result, in the opinion of New Orleans merchants, from the building of a short cut from the Mississippi River to Lake Borgne, thence communicating with the Gulf of Mexico. So a ship canal, 160 feet wide and six miles long, is to be made through a Louisiana cypress swamp. The materials to be removed are made up of the deposits of the Mississippi River, firmly held together by the never decaying and never ending roots of the famous cypress.

Messrs. A. and B. are building the dredges for this enterprise, which are well worth describing. On a strong frame of oak and iron are secured two 52-horse power engines. These handle a dipper weighing two tons, with a beam or handle long enough and strong enough to operate in water 25 feet deep. There are four of these frames, each with its two engines and its single ponderous dipper. Each of these with its necessary appliances weighs at least 40 tons. These require the use of two strong boats sufficiently large and capacious to sustain two of these machines with the fuel, etc., requisite to keep the machinery in operation.

How they Operate.

The machinery of these boats is the same with a single exception, and that is in the construction of the dippers. Those of the pioneer boat are armed with cutters, teeth and hooks of steel. This boat is placed where the first work is to be performed. The ponderous dipper is thrust against the bottom by means of one part of the machinery, and then raised by another. The cutters, teeth and hooks cut and tear up roots and timber, and deposit them beyond the banks of the canal. Both dippers are operated at the same time, and thus they excavate, as they advance, the full width of the canal, depositing trees, roots, rocks and earth beyond its banks.

The second boat has plain dippers of the best construction for the removal of earth and mud. It is presumed that the first or pioneer machinery has cleared the canal of all formidable obstacles; the work of the second is to deepen and finish the channel ready for the passage of steamers of every size and kind, or even of national ships of the largest class.

The dredges operate in water from two feet deep to any depth necessary to float a ship. They cut through and remove everything,—roots, earth and boulders weighing tons. Nothing but a solid ledge of rock can stop them.

The cost of the dredges is \$44,000. The workmanship displayed and the talent shown in their construction are of the

highest order. I should think that the projectors of your Stockton Ship Canal might profit by the examination of these engines and their operations in Louisiana.

Reaper and Mower Manufactory.

A very large, and a certainly most important, factory, is that of the McCormick Reaper and Mower Manufacturing Co. The works are extensive and most complete in all respects. I was politely shown through the various departments, and naturally found much of great interest. Over 600 hands are employed, and over *fourteen thousand* reapers and mowers will be put in the market this year.

To Mr. McCormick we are indebted for our present reaping machine, for he was the first to make any improvement on the old time implements. His first patent was granted to him while in Virginia. The talent which enabled him to make this, the most important commencement, has enabled him to make continually additional improvements. These works were started in 1845. They first turned out about a thousand machines yearly. But the excellence and importance of the McCormick Reaper and Mower brought them into use everywhere. They are sent all over the United States and to Europe. The demand is ever on the increase, and now the company find that they must enlarge their works, and they are taking measures for having a capacity of 20,000 to 25,000 machines yearly!

These items attest to the excellence of the machines and the superiority of their workmanship. Of course, I knew of the famous article before I came here, but I did not appreciate at all what an enormous amount of work was done by them every year, until I had gone through this factory.

W. H. M.

An Agricultural Mining District in Montana.

[Written for the PRESS.]

Flint Creek.

EDITORS PRESS:—I presume few of your readers are aware of the location of the Flint Creek silver mines, and indulge the hope that a brief sketch of the locality may not prove uninteresting. They are located upon the west branch of the above creek, about fifteen miles from its source, which is in an intervening spur of the Rocky and Bitter Root mountains, and near the celebrated "Atlantic Cable" gold ledge. The creek running nearly due north through the upper and lower valley of Flint, empties into Hell Gate, about thirty miles west from Deer Lodge City. Leaving the latter place for these mines, the traveler may take either of two roads and reach here in fifty-five miles travel. From about midway in the upper valley and at its broadest part, in a right angle, due east, one mile up amongst the grass-covered hills, the mines are located.

Flint Creek, carrying usually about three thousand inches at this point, passes through the valley within two miles of all the principal locations. Besides this stream, three small branches, have their sources within the district, pass directly through the different quartz locations and empty into Flint. Wood is in great abundance upon each side of the valley, and may be had in any given quantity at a cost of \$3½ per cord. The ores are what are termed sulphurets, or milling ores.

The Mines.

So far, no systematic mining to speak of has been prosecuted, owing to the fact that no opportunity has been offered miners to get a working test of their rock. The only mill here (a small ten-stamp one) was erected some three years since by a St. Louis company, whose practical knowledge of the business or the wants of the camp is limited to this single experiment.

As might have been expected, they instituted a series of costly experiments with

ill-adapted machinery, and after one year's manipulation of mill and mine, they stopped operations. Other adventurous individuals, with as little knowledge practical or theoretical of the business, attempted it and failed. A few weeks since, after a careful examination of the ores, Capt. George Plaisted, formerly of Gold Hill, Storey County, Nev., assumed the management of the company's property (the Hope mine and mill), overhauled the machinery and started up. A lack of quicksilver induced him to commence on second-class ores. The result of the first run from this class of ore proves highly satisfactory both to the management and company. From one hundred and five tons, they cleaned up three hundred and forty-seven pounds of refined bars. The present run, from the appearance of the pans, will exceed the first.

oil and Climate.

Too much can scarcely be said in favor of the soil and climate. Indeed, a rich mining region located in the midst of a rich agricultural district is so seldom met with, that it is worthy of remark. The hills and valleys are covered with a thick growth of rich bunch grass, upon which horses and cattle continue to fatten the year round. The soil produces all vegetables raised in a temperate climate in great abundance, and no finer cereals are grown upon the American Continent. The climate, characteristic of the valleys near the Rocky Mountain range and so little understood, is most healthful and free from moisture and miasmatic influences. The temperature compares favorably with northern Missouri, Indiana, Illinois and Ohio. Observations taken during the month of December, and the unusually cold spell, show conclusively that we are less liable to extreme changes in temperature than any of the above mentioned States. While the temperature was down in most localities below 20 degrees, ours at the lowest point barely reached thirteen degrees.

INDEX.

Philipsburg, M. T., Jan. 20, 1871.

City and Country.

[Written for the PRESS.]

EDITORS PRESS:—A man recently from the East, possessing good business qualifications and some means, inquired of an eminent lawyer in San Francisco what he considered the best business for him to engage in. "Agriculture," replied the lawyer; "it is the safest and most profitable as well as the most healthful vocation, both mentally and physically, in which you can embark." "Yes," he continued, "get a farm and live upon it; get out of the hurry and excitement of the city. Better for yourself, better for your wife, and a thousand times better for your children."

The man remembered the early years of his life upon a farm in Indiana, contrasted them with the later years of anxiety and speculation in New York City, and at once took the advice. He is to-day the owner of a fine farm in one of the most beautiful valleys in the State. It is useless to add that he and his family are prosperous and happy.

How much better it would be for many men and their families who now crowd in the cities, eking out a scanty living upon small salaries, or those who have some petty little business in some basement or narrow cellar, if they would obtain lands while they may be had at government prices, and build homes where they could live as they should. No greater contrast can be drawn than that between a tenement house in a city, reeking with filth and disease, and that of a neat farm cottage in the valleys or foothills of California.

CINCINNATUS.

St. Helena, Jan. 24th.

"NOTES of Travel in San Joaquin County, by L. P. Mc., will be found on another page. It came too late for insertion in its regular place."

THE FIRST RAILROAD.—We have seen about a dozen different accounts of the "first" railroad ever built in the United States, and the first locomotive. We used to think that we knew which these were, but there have been so many of the kind, if the eastern papers are all to be believed, that now we feel obliged to "give it up." Here is the latest "first road," from the *Harrisburg State Journal*.—It is generally supposed that the Tramway railroad from Quincy granite quarries to Boston, was the first railway in America; Delaware county antedates this effort by twenty years. The tramway at Leiper's stone quarry, in that county, was constructed in 1806, and that in the Quincy quarries in 1826. The first railroad, however, that approximated in mode of construction to those now in use, was that laid down from Minch Chunk to the mines of the Lehigh coal and navigation company in 1827. In 1837, the Legislature passed a bill authorizing the Lehigh company to connect the navigation on the Lehigh with the canal on the Susquehanna at Wilkesbarre by a railroad. Under this act the Lehigh and Susquehanna railroad was completed in 1843, and in 1867 it was extended down the Lehigh to Easton. In this same wonderful and marvelously rich valley, and historically, one of the most interesting parts of the State, is the Lehigh Valley railroad, begun in 1850 and completed in 1856, mainly through the effort of Asa Packer. By the consolidation of several interior lines, this company now affords a continuous route through the Lehigh coal region to N. Y. state line. As early, therefore, as 1840, Pennsylvania had a total length of 1,280 miles of canal, of which 433 miles were owned by private corporations, and 795 miles of rail, 118 miles were owned by the commonwealth.

THAT FIRST LOCOMOTIVE.—Here is another first locomotive, according to the *Albany (Pa.) Chronicle*: The first locomotive that ever did service in the United States, is now lying outside of a foundry at Carbondale, Luzerne County. It ought to be preserved somewhere as an interesting relic of the early days of railroading. The first locomotive engine introduced and worked in America, was run upon the Delaware and Hudson Railroad, in the year 1828, and Hone's Dale offered its friendly glen for the purpose of conducting the experiment. This locomotive, called the "Stourbridge Lion," was built in England, of the best workmanship and material, and most approved pattern of that date. The road passed out of Honesdale by a sharp northwesterly curve, with a moderate grade, and was carried over the Lackawaxen by a long hemlock trestling, considered too frail by many to support the great weight of the mysterious looking engine all ready for the hazardous journey.

As the crowd gathered from far and near, expecting that bridge, locomotive and all, would plunge into the stream the moment the passage was attempted, no one dared to run the locomotive across the chasm but Major Horatio Allen, who, amid exultation and praise, passed over the bridge and a portion of the road in safety. The engine, however, was abandoned, as the slender trestling forming much of the body of the road, sufficiently strong for ordinary cars, was found too feeble for the "weight and wear." Major Allen, in the account of this first trip of a locomotive on this continent, says: "As I placed my hand on the throttle, I was undecided whether I would move slowly or with a fair degree of speed; but, believing that the road would prove safe, and preferring, if we did go down, to go down handsomely and without any evidence of timidity, I started with considerable velocity, passed the curve over the creek safely, and was soon out of hearing of the vast assemblage. At the end of two or three miles I reversed the valve and returned without accident, having thus made the first railroad trip by locomotive ever made on the western hemisphere."

RETURN OF THE SHIP PROSPECTORS.—On Tuesday evening last, says the *San Bernardino Guardian* of the 14th, Charley Clusker and party returned to town, we are sorry to say, unsuccessful. Their animals were completely worn out—scarcely being able to bring the wagon home. The indomitable Charley is not discouraged, and will make another effort to find the ship, this time via Dos Palmas. He deserves success, and if the ship is there, of which he entertains no doubt, he will eventually find it. We wish him success.

THE Princess of Prussia makes her own dresses and bonnets.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SCHENECTADY.—*Miner*, Jan. 21st: At this mine large quantities of soft ore are being taken out, and considerable hard ore. Of this latter only so much is broken as is necessary in following up the pockets which contain the rich sack ore.

GLOBE.—Mr. Ambler, the Supt., informs us that this company now have ample funds in hand to finish the works, and that he is authorized to push matters. Mr. A. seems to feel certain of a satisfactory result from the Globe ores in the mill now being built.

AMADOR COUNTY.

THE SITUATION.—*Dispatch*, Jan. 28th. The mining interests of Amador have not been for years in a more prosperous state. All the mines and mills in operation are yielding large profits. Placer mining, systematically prosecuted, continues to pay well. The rains have given new hope for the season. The extension of the Butte ditch will be completed within a few days. This work will open up a large amount of mining ground hitherto unavailable for want of water. The Kennedy mill will commence operations immediately after the water is turned on.

KENNEDY.—This mine is developing into one of the richest in California. The main working is now at a depth of 500 feet, where the vein is five feet. It is turning out rock that will yield more than \$1,000 per ton. There are thousands of tons of this uncovered. The mine will be operated with all the force that can be employed, as soon as the mill can be started—which will be some time next week.

VOLCANO.—*Cor.* of same: "The Markley mine is four or five miles from Volcano. About two years ago operations were commenced, and a depth of 280 feet has been reached. At the surface the main chimney is two feet thick and sixty feet long; at the 200-foot level, four feet thick and 280 feet long. From rock taken out of the 200-foot level, they obtained \$14,000, after which, in four weeks, they "stopped out" rock, from which they obtained \$8,000. Last fall they sank 80 feet, and put up steam hoisting works of 15-horse power. The company recently started up their twelve stamps, 350 pounds each, with which they pounded out \$1,500 per week, and run ten hours per day. Nichales & Markley are largely interested in a mine recently discovered near Fort Ann, one mile southwest of the Markley, from which they are taking rock which prospects \$75 per ton on an average. They are down 25 feet and have a paying ledge 2½ feet wide.

CALAVERAS COUNTY.

MINING.—*Chronicle*, Jan. 28th: Since the rains, all the mills in this vicinity have resumed active operations, and gravel mining is progressing under the impetus of a full head of water.

EL DORADO COUNTY.

CLARKSVILLE.—*Cor.* of Placerville Democrat, Jan. 28th: The mines in the vicinity are being extensively worked; more this year than at any previous time for five or six years. There is good ground here, and few of the ravines but will pay ordinary wages. There is one place in which a gentleman has just taken three dollars at a pan. There has been pipe laid for a hydraulic on the north side of the hill, and they are playing away in a lively manner.

INYO COUNTY.

MOUNT HOPE MINE.—*Independent*, Jan. 21st: This mine is one mile east of the Chrysopolis mill. Capt. Chase is driving a tunnel, which is now in 50 feet, and in 30 or 40 feet further expects to strike the ledge at a depth of 150 feet.

ECLIPSE.—We hear of extensive changes on the part of the Eclipse Co., among the rest, the cutting of a ditch to supply water from the river as a motive power.

LASSEN COUNTY.

THE MINES.—*Sage Brush*, Jan. 14th: Messrs. Neale & Goldstein returned from the new mines this week. They bring still more flattering news. Ore 25 feet below the surface prospects fabulously rich in gold and silver.

PLACER COUNTY.

GRAVES-PUTNAM.—*Herald*, Jan. 28th: The mill of this Co. on Baltimore ravine is completed and has been running for eight or nine days, part of the time with a light head of water and only four stamps. In a day or two more the owners will make the first clean up. The mill will crush from ten to fourteen tons per day, and the ledge

as now opened can easily keep it in constant operation with the ore now out—some 500 tons.

RISING SUN.—We are informed that this mine has a better prospect than at any previous time. The workmen have reached, at the 300-foot level, a larger and richer ledge of ore, the ledge being two feet thick. This Co. has spent \$90,000, and has brought to the surface something over \$30,000.

PLUMAS COUNTY.

DEADWOOD.—*Quincy National*, Jan. 21st: The Deadwood claim on Emigrant Hill continues to "pan." We have no figures for this week's work, but are informed that the hoys are taking out very rich dirt, and getting plenty of coarse gold.

SIERRA COUNTY.

ITEMS.—*Messenger*, Jan. 28th: We learn that in all probability the Keystone will soon open.... Our mines are receiving attention from capitalists.... The old Caledonian Co., at Cedar Grove, are taking out pretty good pay.

RAIN.—*Democrat*, Jan. 26th: Present indications are favorable for a water season yet. The weather is warm. The rain commenced falling on Sunday. From the appearance of the river on Monday, we judge it rained higher up in the mountains. This is just what we want at this time to start the water in the ditches, which were blocked up with snow.

PRIMROSE MINE.—This has been sold to Messrs. Silverman & Falk, both of Chicago. The sale was private. The Primrose has paid well to its former owners, but owing to bad management it became insolvent. No longer ago than three years, Mr. Lamping was offered \$100,000 in gold coin for the mine, and since that time \$150,000 improvements have been added. Ross Browne, the United States geologist, makes the Primrose second to none in richness.

SISKIYOU COUNTY.

ROUGH AND READY.—*Yreka Journal*, Jan. 25th: The Etna Mining Co. is steadily working their claim near Etna Mills, with a powerful hydraulic, supplied from Etna Creek, and have found good prospects.

NEVADA COUNTY.

BLOOMFIELD.—*Transcript*, Jan. 27th: R. C. Black has fitted up his claims on the east bank of Humboldt Creek, and has commenced washing, using water from the Eureka Lake ditch, employing six hands. A. G. Dennett has fitted up his claims on the east side of Colorado Hill. He has put in a new three foot flume, also a new flume and bulkhead, from which a string of 15 and 11 inch iron pipe, 600 feet in length, leads the water to a monitor of Craig's patent, having a capacity of throwing 200 to 600 inches. Brockmeyer and Haner, who own adjoining claims on the north side of the same mill, have consolidated, and are refitting the lower set. These claims, as those of Dennett have been idle five or six years, owing to high price of water and the want of sufficient pressure through the old fashioned hydraulic pipes. The N. B. G. M. Co. have had to suspend operations on their shaft at the Malakoff, for repairs. The gravel keeps up its character for richness. They employ 40 men.

STRUCK IT.—Same of 29th: On Friday a rich strike was made in Stiles' mine, at the outlet of Lost Hill Ravine. A cross cut was run at the end of the tunnel, and a ledge struck, which the men worked across a distance of three feet, and had not cut through. The ore shows gold all through. This was the ledge upon which Stiles put up hoisting works.

CEMENT HILL.—The Gravel Co. have their appliances all completed, and yesterday, for the first time, turned in a head of water to see if everything was in working order. The Co. commence regular washing Monday.

ERIE MINE.—*Gazette*, Jan. 25th: The Erie, or the Jim Crack mine, three and a half miles south of Eureka, is most promising. The owners have leased the mill and mine for two years to Veatch & McCurdy. The ledge averages ten feet, the whole of which yields \$15 a ton. The mine is explored to the depth of one hundred and twenty feet, with a side drift of two hundred and twenty feet. The amount of rock that could be raised daily if there were means to crush it, is immense. The present ten stamp mill is run day and night. The lessees have been offered \$30,000 if they would give up the lease to the owners.

BLACK & IRWIN.—This mine, near Eureka, is being vigorously worked. The ten stamp steam mill is run night and day, and the rock pays good dividends.

SPECIMENS.—*Grass Valley Union*, Jan. 29th: Yesterday a lot of fine specimens

came up out of the Eureka mine, which in a few minutes showed contents to the value of \$1,000.

THE RAIN.—The *Union* of 26th says: We understand that the Greenhorn mill commenced crushing yesterday, water having been supplied by the last storm. On Randolph Ridge several claims have commenced.

The *Gazette* of 28th says there is a fair prospect that the rain will continue until there is water enough for hydraulic mining.

The *Transcript* of 29th gives the total rainfall for the season, so far, as 24.54 inches. At this time last year it was 27.35.

PENNSYLVANIA.—*Transcript*, Jan. 31st: This mine is being opened to a new level and is looking first rate. We understand that the yield has been sufficient to pay all expenses of sinking.

NEW MILL.—Groves and Hoagland are to put up a mill near Emigrant Gap. They have a six foot ledge on which they have sunk 25 feet, and some rock crushed at Colfax yielded \$100 per ton.

TRINITY COUNTY.

THE PROSPECTS.—*Journal*, Jan. 28th: Already the season is too far advanced to be a good one, but hopes are still entertained that there will be storm enough to enable our miners to make an average. We are not very certain of this. There is no snow on the mountains. We believe that most of our miners will be satisfied if they get enough work done to pay expenses.

REPAIRED.—The big flume having broken down, some of the Canyon Creek miners have been short of water. It is now nearly replaced.

Nevada.

ELY DISTRICT.

MEADOW VALLEY CO.—*Record*, Jan. 19: We made a trip to the mine on Tuesday. In the old shaft we found a 5-foot vein, from which a large amount of ore is being extracted. At No. 7, the recent purchase on the 200-foot level we found an eight-foot vein of ore that will certainly work \$200 to \$250 per ton.

WASHINGTON MINE.—Same of 22d: We visited the Washington claim, owned by the Pioche Co., on Friday. The timbering of the shaft to the depth of 120 feet is a fine piece of workmanship. Ventilation is made perfect by communication with the old shaft. The ledge is 5 to 6 feet wide, and a good vein of ore is shown throughout.

COLLEEN BAWN.—Some rock obtained from this mine at the depth of 14 feet, assayed \$250 per ton.

BULLION.—The shipments for the week ending January 20th, through Wells, Fargo & Co. are: to the East, \$59,010.39; to the West, \$4,700, making together \$63,710.39.

BULLION.—*Record*, Jan. 26th: The Meadow Valley Co. shipped during the week ending January 21st, bullion amounting to \$51,253.31. The Raymond & Ely Co. shipped \$13,146.07. Morgan Courtney, Flood and others, shipped 5 bars valued at \$8,941. One bar was shipped by Felsenath valued at \$1,122 and one by Barnum W. Field valued at \$1,000, making a total \$75,462.38.

CREOLE.—We were shown on Monday 3 bars worth \$6,000, the product of ore from the Creole claim worked by Raymond & Bro.'s 5-stamp mill, Elyville.

ESMERALDA.

AURORA.—*Cor.* of *Inyo Independent*, Jan. 21st: The old mines of Columbus district are turning out large quantities of chloride ores of fabulous richness, while some new discoveries, give evidence of being rich. Messrs. Sweetapple and Hazel intend to erect a mill soon. Work has been suspended at the Silver Peak mine and mill for some time, but I am informed that operations will be resumed about the 1st of May. At Pine Grove, the yield of the mines is about \$10,000 per week, chiefly gold bullion. Rockland, four miles south, is beginning to be a camp of great importance. One of the best mines in the State—"the Dolores"—is situated there, and rumor hath it that Mr. Sylvester Kean, who is the principal owner, has sold one thousand feet to Pope & Talbot, of San Francisco, for a large sum of money. There is one mill running steadily at Rockland, and another will be built in the spring.

HUMBOLDT.

SHUT DOWN.—Silver State, Jan. 21st: The Butte mill, after an eight days' run, shut down on Wednesday for the want of water. Enough was shown in that eight days, to satisfy all that the new desulphurizing furnace is a complete success.

THE SHEBA.—All who have examined this mine within the last few days, concur in the opinion that a fine vein of quartz and

mineral has been found—a regular well defined lode.

BULLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue was 594 pounds, valued at \$7,876.

GOLD RUN DISTRICT.—*Reg.*, Jan. 28th: On the First South Extension of the Golconda we find Ed. Lovejoy sinking a shaft on the ledge which is two feet thick, fifteen feet from the surface. Several tons of ore is piled upon the dump, the richest of which he intends to have worked at the Rye Patch mill. On the Second South Extension, L. D. Wehh has eight men extracting ore and running levels. The main shaft is down 50 feet. The ledge will average two feet. The ore is assorted on the dump, the richest sacked for shipment to Rye Patch. Mr. Wehh has rented the Golconda mill for the purpose of reducing his second class ores. The Cumberland claim is now principally owned by Carter & Hasson. A shaft 50 feet has been sunk. The ore is of good quality and all taken from the shaft has been shipped. A large quantity of argentiferous galena, lies on the dump. Work suspended, cause impetuosity of the owners. South of the Cumberland is the Register, on which a drift shows a vein of ore three feet in thickness. Work is also suspended on this mine.

RAILROAD DISTRICT.—*Elko Independent*, Jan. 28th:—Work has been done on several mines within the last three months, proving them rich. Last Chance and Shoo-Fly, have been worked the most extensively. They are owned by E. V. Robbins, and we learn through him that the shaft in the Last Chance is down sixty feet, with a vein of good ore all the way, and the ledge twenty-two feet wide. Work has been suspended for a few weeks. From twenty-one assays, the average was \$132, the largest being \$911 51. Shoo-Fly is in a vein five feet in width of very rich carbonate ore, five assays showing an average of \$203 per ton, one of this five being a select specimen, which assayed \$395 83. There are one hundred tons on the dump, and two men are taking out three to five tons per day. A wire cable twelve hundred feet in length is being worked, and six to eight tons of ore per day let down into the canyon below.

WASHOE.

YELLOW JACKET.—*Enterprise*, Jan. 29th: Beyond the completion of an air-connection by means of a winze from the 900-foot to the 1,000-foot level, we learn of nothing new. The ore product, which has been 170 tons per day, will now be greatly increased by reason of this. The ore yields now \$38 per ton.

CHOLLAR-POTOSI.—This mine yielded 1,690 tons of ore during the past week, assaying \$75 per ton. In the Blue Wing section there has been some improvement. Some fine ore has been met with, which gives promise of extending to the surface.

SAVAGE.—About the usual amount of ore is extracted. The ore does not appear to improve on the 600-foot level. There is still a large amount coming from the 535-foot level, but it is not of high grade. The mine is yielding 200 tons of ore per day.

HALE & NORCROSS.—This is looking well throughout. The ore shipments are fully up to those of last week and the assays from some sections show a decided improvement.

CROWN POINT.—The ore deposit on the 1,100-foot level improves as it is followed upward, but in the winze it is of low grade and becomes poorer down. The drift on the 1,000-foot level is near the ore body. The yield remains about the same.

OVERMAN.—On the 600-foot level, north, they are making a raise in quartz, as yet not found to carry metal. The 226-foot level is yielding eighty tons per day, while some ten tons are taken from the 400-foot level.

SIERRA NEVADA.—The mine is yielding the usual ore, and the mill is in constant operation. The company is also sending ore to the Berry & Evans mill. The Sacramento mill will start up on Sierra Nevada ore about the 5th of February.

SEGREGATED BELCHER.—A few miners are drifting east for the ore body supposed to exist, but no ore is being raised at present. There are several thousand tons on the dump waiting for the starting of the mill on Carson River.

OPHIR.—In the "up-rise" from the south drift promising quartz has been met with, but as yet no paying ore. Some work has been done in the north drift.

VIRGINIA CONSOLIDATED.—Good progress is being made in the drift to the northwest from the main shaft.

GOULD & CURRY.—About the usual amount of ore taken, and the assays from car samples show \$35 to \$38 per ton.

CHEMICAL REDUCTION.—By several of the best known methods.

INDUSTRIAL MISCELLANY.

COTTON CULTURE IN CALIFORNIA. No. 2.

[Written for the Press.]

BY JOHN L. STRONG.

When the work of planting is concluded, there comes an interval of five to ten days during which the germination of the plant takes place. This interval will be devoted by the farmer to the satisfaction of the numerous demands which a well regulated system of cultivation will make upon his attention. As soon as the young cotton is up to a good stand, and the third and fourth leaves begin to appear, the working may commence.

The ground must be kept loose and mellow for two reasons. 1st. That the moisture may rise to the surface. 2nd. That the tap-root, now making its way downward, may not be obstructed. For this purpose, a light cultivator should be run through the rows, each way, throwing a little light earth to the plant. By this operation, also, all weeds or grass that may have sprung up in the interval between the planting and coming up of the cotton, will be destroyed.

The first cultivating should be followed by the hoe. Any grass or weeds that may have been left by the cultivator, must be destroyed, and the plants reduced to a stand. In the judgment of the writer, from two to three stalks should be left in each check; the number to be graduated by the character of the soil. The thinning should be done by hand, and the thrickest and healthiest plants left.

The hoe hands will carry a small sack full of seed, suspended from the neck by a string, and from this sack carefully replant all hills or checks where the seed has failed to come up. After this work is finished, the cultivator should be again passed through the rows, each way, keeping the soil about the plant loose, to allow a full circulation of atmospheric air to the fibrous roots, which are now shooting out in every direction from the main or tap-root, in search of nourishment, and to furnish also a free mellow soil for their rapid and perfect development. Care should be exercised that these fibrous roots are left unbroken by the plow, to avoid which, it should not approach the plants nearer than six inches on either side. If any grass or weeds should be left on the spaces thus remaining untouched around the plants, it must be removed by the hoes, which will follow for this purpose and also to reduce the replanted cotton to a stand. The hoe hands will carefully shave off the grass from the spaces, not dig it, as the digging will either break or expose the fibrous roots, deprive the plant of one of the principal sources of its nourishment, and result in a loss of its fruit during that season when its demands upon culture, soil and atmosphere are greatest.

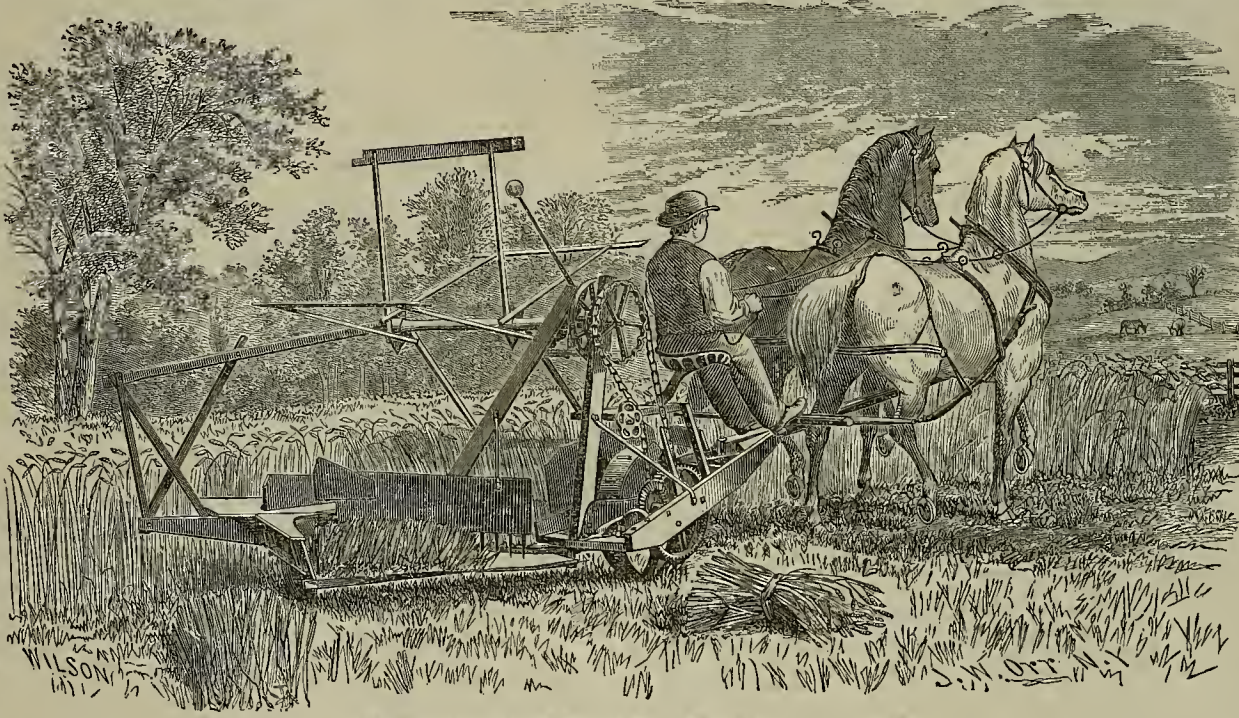
It is the opinion of the writer that the system herein indicated will insure a full yield. It involves thorough preparation and careful cultivation—treatment which invariably resulted in remunerative returns to the planters of the Cotton States—but which, in the present disorganized and demoralized condition of the labor system, he cannot adopt. Under the influence of the pernicious system of "shares," by which alone he can obtain labor to cultivate his fields, every effort toward progress and improvement is fettered, and he finds himself under the necessity of substituting ignorant and primitive ideas for his own intelligent direction. He thus witnesses a

ruthless butchery of the cotton plant under the old "grass killing" process, and the constant exhaustion of the soil by chancelless and artless culture. Add to this his subjection to all the vicissitudes of uncertain seasons and fluctuations in price, and the manifest advantages which we enjoy will present to us sufficient causes for present gratulation and future hopes.

Each mail covers the table of the writer with disheartening lamentations from his Southern friends over present prospects and future anticipations. Their fields are white with ungathered cotton, the snows and freezings of a winter of unprecedented coldness are beating it into the earth and destroying it, and the "share-holder" is idle. Under the highest average yield of the war, the cost of production exceeds the price received, and longing eyes are turned to California, earnestly watching the efforts of the writer and eagerly awaiting the results of those efforts, made at one-half the expense that attend their own. In the next paper contributed to the Press the promise of his efforts will be stated.

THE McCORMICK REAPER AND MOWER.

On another page will be found an interesting letter from W. H. M., who sends us



THE McCORMICK "RELIABLE" REAPER AND MOWER.

an account of the celebrated manufactory of the McCormick Reaper and Mower Manufacturing Company, at Chicago. In connection with this, we give an engraving of one of the machines turned out by that company, the one which they term the "Reliable."

In no other matter has our American inventive talent been turned to better account or followed by more important results, than in the improvement of agricultural implements. The farmer is indispensable to the welfare, to the existence even, of the country. It is therefore particularly necessary that his tools should be of the best kind. In our land of broad acres and extensive farms, it is necessary to have machines which will work with rapidity, that large crops may be grown and harvested. Much credit is then due to the man who invents improved devices for the farmer; and perhaps of all inventors of the kind, no one deserves more praise than Mr. McCormick, the Pioneer of reapers and mowers.

We shall be enabled to give illustrations of one or two other inventions of the kind as devised by this gentleman; and thereby, we think, we shall be acting in the interest of our readers; for here, if anywhere, such machines are particularly valuable.

A little sound knowledge, with a great deal of care, goes further on a farm than great knowledge half applied.

Sweden still sticks to the velocipede, and several factories are busy all the time,

SALT MAKING IN ALAMEDA.

The *Overland Monthly* for February shows undiminished excellence. It contains the usual miscellany of good stories, poetry and interesting articles. The corps of contributors is enlarged by the addition of several good writers, and the matter is as interesting as ever. We can well be proud of the existence of such a magazine, filled with contributions of Pacific Coast talent, devoted to and ably supporting the Pacific Coast interests,—one which we can justly claim to be peculiarly *ours*,—and yet inferior to no journal in the whole country. The last statement is sufficiently well proved by its extensive circulation at the East. We take from its columns the following extract concerning the salt works at Alameda:—

In the salt works of Mr. Quigley, three ponds are used. These ponds are situated in close proximity, and contain each about the same superficies, or eight acres. The outer pond, and the one that communicates with the tide-water directly, holds the salt water in deposit, to be carried into the intermediate, or "pickle-pond," as it may be needed, and is generally less shallow than the other two. The water here is of a dull, leaden color, with nothing to relieve its

GRAPE CULTURE IN THE FOOT HILLS.

Some one has furnished the *Hearth and Home* the following figures showing the profits of grape culture in the foot-hills of this state:—

The cost of cultivation and net profits this year of a small vineyard of less than four acres in El Dorado county, are hereto annexed, the figures given being furnished by the owner himself:

Thirty days' pruning in Jan. and Feb.....	\$60 00
Cultivating, men and horse 8 days.....	24 00
Hoeing, 4 days.....	8 00
Picking, 15 days.....	30 00

Total expenses.....\$122 00

Nineteen tons of grapes—four and three-quarter tons per acre—were, without irrigation, gathered from the above small patch of ground, and that was a small yield. The grapes were sold for \$20 per ton, or a total of \$380. Deducting the expenses of cultivation from the gross receipts, leaves a net return of \$258, or \$64 per acre.

The only reason, remarks the *Marysville Appeal*, why grape culture has not proved profitable in many remote places has been in the want of a market for the grapes or wine. All through the northern counties grapes grow abundantly, but the expense of transporting them to market is so great that it has prevented people from planting vines, except to provide grapes for their own use or local consumption.

If the grape growers would unite in establishing wine-making companies with proper cellars, etc., or in any way procure their establishment at accessible points, they would thereby provide abundant and convenient markets for their surplus grapes at highly remunerative prices—say \$20 per ton. Several such establishments are already in existence and others are in contemplation, which, as soon as in operation, will become centers of grape-growing districts, and lead to the rapid development of an important industry.

The writer in the *Hearth and Home*, from whom we have already quoted, says further:—"In ten years hence, certainly, and in five probably, an average vineyard and orchard in the foothills will sell for more, acre for acre, than wheat land in our valleys, for which from \$30 to \$60 per acre is now asked.

We believe that his prognostications are correct, and that the dwellers in the foothills will soon awake to a realization of the situation and profit by it.

WOOD AND WATER.—There is talk, in some of the Western States, of asking Congress, if State statutes are not to be procured, to pass a law for the protection of the forests growing by the large streams of the country, at least at their sources. The ground for such a movement is, that our annual spring freshets, which are so destructive in their effects, would thereby be greatly, if not entirely, prevented.

SINGULAR CIRCUMSTANCE.—A man by the name of Moran recently murdered Minot C. Packard, of Stoughton, Mass. When the grand jury, before whom Moran's case was to be presented, was drawn, the first name taken from the jury box was that of his victim.

MULBERRY TREES.—The *Sacramento Bee* of Jan. 23d, states that I. N. Hoag had that day forwarded to a party at Lincoln, Placer county, 2,300 mulberry trees grown in his nursery across the river. Large quantities of these trees are almost daily sent by him to the interior, indicating that silk culture is rapidly on the increase.

SWAMP LANDS.—Oregon has 2,000,000 acres of swamp lands and California about 3,300,000.

POPULAR LECTURES.

Vaporization and Elastic Force of Steam.

[Prof. JOHN LECONTE before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

What Boiling and Simmering are.

LECT. III. Jan. 28. We have before considered, said the professor, the formation of vapors at temperatures below the boiling point. We have seen that the vapors form at the surface of the liquid and that their elastic force increases with the temperature. At the boiling point, however, new phenomena present themselves. No matter how we may increase the heat applied, we can get no augmentation of temperature in the liquid. In the case of water, we cannot get the thermometer to rise above 212°. Beyond this point, the heat all disappears, or rather, it is used up in changing the state of the liquid, in the rapid formation of vapor.

The ebullition or boiling is caused by bubbles of vapor forming in the body of the liquid and rising up through the liquid without being condensed. It is necessary for this action that the elasticity of the vapor formed should be sufficient to overcome all the forces striving to restrain that elasticity. One of these forces is the cohesion of the particles of the liquid; this is different in different liquids. Another is the pressure of the superincumbent liquid; another is the pressure of the atmosphere on the surface of the liquid.

Boiling is not the passage through the liquid of bubbles of heated air, as is very commonly supposed, for this would require an indefinite supply of air in the liquid, but of vapor, as already remarked. The *simmering* which precedes boiling is really a phenomenon of the same character. When heat is applied, the water (or other liquid) below becomes warm and rises, while cold water takes its place. If we heat slowly, this circulation continues and gradually the whole is heated to the boiling point without any simmering. But if we heat rapidly, this circulation cannot take place rapidly enough, and steam is formed below and rises into the upper part of the liquid which is not yet hot enough, however, to enable the steam to pass through it uncondensed. Therefore the steam bubbles collapse, and this is what we call *simmering*. When the boiling point is reached, the vapors are no longer thus condensed, do not collapse.

We find that each liquid boils at a fixed temperature under the same circumstances; that the temperature remains constant during the whole process; and that the liquid expands and takes up a much larger space in changing to vapor.

Circumstances which influence boiling are: 1. The depth from the surface of the liquid; the pressure of the superincumbent column makes a great difference. 2. The pressure on the surface of the liquid. 3. Substances in solution, as salts, etc. 4. The state of cohesion of the particles to the inclosing vessel, or to one another.

We can Lower the Boiling Point.

We can reduce the boiling point indefinitely. Thus, if we put water under a vacuum (by means of an air-pump), by thus reducing the pressure on it, we can get it to *boil* at 100° (Fah.) or 60°, or even (if we remove the vapor formed, by proper apparatus) *when on the point of freezing*. We can show this by a simple, and rather curious, experiment. We fill a glass flask partly full of water, which we boil until all air is driven out of the flask. We cork the flask up tightly and invert it in a stand, in such a manner that the neck dips into a vessel filled with water. Now there is no pressure on the liquid in the flask except that of the water vapor. If then we pour cold water on the flask, the water in it commences to boil, while by pouring hot water on it, this boiling can be stopped. The reason is that the cold water cools and condenses the vapor and therefore diminishes the pressure on the liquid.

As removing or lessening the pressure of the air on the surface of the liquid lowers the boiling point, we find that this boiling temperature is the lower, the higher up we ascend. The following table illustrates this, giving the boiling point of water at several elevated points.

	Elevation.	Boiling Temp.
Mt. Blanc.....	15,780 feet	184.95° Fah.
Andiana (South America) 13,455 "		187.30 "
Quito.....	9,541 "	194.20 "
City of Mexico.....	7,471 "	198.10 "
Sea Level.....	0 "	212.00 "
Dead Sea.....	-1,317 "	214.44 "

Effect on Cooking—Heights measured by the Boiling Points.

In consequence of this, combined with the fact that the cooking power is increased by an increase of the boiling point, but decreased by the decrease thereof, people in elevated regions find it difficult to cook their food. Thus, at Antisana, potatoes may be boiled for hours without being made eatable. Under such circumstances people are obliged to have recourse to artificial means to raise the boiling point. For certain substances, as the starch of potatoes, etc., a certain high temperature is required to cook them, and if the boiling point is below that temperature, boiling will not cook them.

The relation of elevation to boiling point has led to propositions to determine the height of places by the boiling temperature, if one has no better way. But this is a very imperfect method, and one which cannot be relied on. Formulas have been given for this object. Forbes gave this: $H = 543.2 \times (212^\circ - t)$, t being the boiling temperature at the place. Tyndall gives it: $H = 590 \times (212^\circ - t)$. Now if we apply this to Mt. Blanc, where the boiling temperature is 184.95°, we should have the height, according to Forbes' formula, $H = 513.2 (212 - 184.95) = 14,696$ feet; or, according to Tyndall, $H = 590 (212 - 184.95) = 15,959$ feet, while in reality, it is 15,780 feet, as given above.

This shows the inaccuracy of the method. Moreover, the thermometer used must be very delicate, for a mistake of one-tenth of a degree gives an error of 60 feet! Again, the barometer is subject to fluctuations at any one place. Thus, at Paris, it has been found to stand at 761 m.m., and at 719 m.m. The boiling temperature for the first point is 213.41° Fah., for the second, 209.30°. Difference, 4.11°. Reckoning by Tyndall's formula, we have the difference in height $(H = 590 \times 4.11) = 2,443$ feet; that is, the height of Paris has fluctuated 2,443 feet; while, of course it has in reality remained the same. By this method, a traveler found that the source of the Amazon was several hundred feet below the mouth.

We can raise the Boiling Point.

By increasing the pressure, we can raise the boiling point. This is an important fact, for by it we are enabled to dissolve many substances usually considered insoluble. If, for example, we suspend fragments of glass in the boiler of a steam engine, for some time, we find that they have assumed the shape of drops, showing that they have been dissolved to a certain extent. It is important in a geological point of view, indicating that many minerals may be thus dissolved in the interior of the earth by the waters percolating there. And as a small amount of alkali, dissolved in the water, augments its solvent power, this becomes a point of very considerable geological interest.

Papins "digestor" was merely a kettle arranged with a valve to increase the boiling point, by increasing the pressure, so that in it bones can be dissolved in hot water. The common "soup-digestor" is a similar arrangement, by which we can dissolve not only the juices of meat, but also the gristle, etc.

By dissolving salts in water, we can raise the boiling point. This may possibly result from the cohesive force of the particles being increased thereby. By adding chloride of calcium, the boiling point of water has been raised to 335° Fah., for example. In support of the explanation just given, we may remark that it has been found that washing the interior of a vessel with sulphuric acid increases the boiling point of water heated in this vessel, by increasing the cohesion of the water particles to the sides of the vessel. By adding the acid, the boiling point can be raised very considerably, but when the liquid commences to boil, it does so with great violence, incurring danger of breaking the vessel. For the heat hitherto imprisoned makes steam with great force. Then the temperature sinks to and remains at 212°.

The presence of air in water promotes boiling and its absence retards it. We may perhaps compare the particles of air intermingled with the particles of water to elastic cushions, which serve to act against the cohesive forces; but when these cushions are removed, greater force is necessary to overcome the latter. By removing the air, water has been raised to a temperature of 300° without boiling. But when it does commence to boil, as in the last case, it does so with explosive force, and the temperature falls to 212°.

Boiler Explosions.

Very possibly some of the mysterious cases of boiler explosions may be due to this cause. For example, a river steamer goes along quietly until it comes to a stop at a landing; then the pumps stop and the water in the boiler becomes quiet, and very probably the temperature increases until it may be above the boiling point.

Nothing occurs until the steamer starts again, when the pumps commence working, water holding air is injected into the boiler, and an explosion follows. This would explain why a certain class of explosions occurs when an engine starts.

Faraday has experimented on this subject. In order to get the water as free from air as possible—and to get it perfectly free is very difficult—he took solid ice, which holds but very little air, and melted it under oil. He, too, raised the water to 300° without boiling.

Dufour went still further. He found that there were other conditions under which the boiling point could be raised. This he did by heating liquids which were not in contact with any solid. Thus, he made an oily mixture of the same specific gravity as water, but with a higher boiling point, and put a drop of water into it. The drop remained suspended in the oily mass, and by heating the oil, he could get the water above its boiling point without boiling. A drop, one or two millimeters in diameter, could be heated thus to 350°. This corresponds to a force, retaining the water in the spherical shape (which it assumes) of 120 lbs. per square inch. He concluded that its remaining without boiling was due to the elastic film which holds it in shape. As soon as the drop is touched by a solid body, as a glass rod, it boils with violence. This experiment can be repeated with other substances; as, for instance, with chloroform in a concentrated solution of chloride of zinc.

The Spheroidal State—What it is.

This phenomenon has been observed from time immemorial, by ordinary persons. Blacksmiths have often witnessed its occurrence, for when they throw water on a hot fire, many of the drops dance about quite a time without evaporating; and laundresses test the heat of their flat-irons by it, for if the saliva simply evaporates they know the iron is not as hot as when it dances about in a globule.

But nothing resulted from these observations until the attention of scientific men was attracted, in 1756; and in 1842 the matter was scientifically investigated. Boutigny investigated the matter with great care, and arrived at important results.

We heat a metallic plate or dish (of silver, copper or platinum) to a red heat over a spirit lamp, and then put a few drops of water on the plate. The liquid assumes a globular shape, often has a roscate hue, and rotates rapidly, without boiling or decreasing perceptibly in size. When the plate is kept very hot, we can gradually add quite a large amount of water without its boiling. If one lets the plate cool, the water begins suddenly to boil with great violence.

Experiments have established the following: 1. The temperature of the plate is above the boiling temperature of the liquid.

2. The temperature of the liquid spheroid is below its boiling temperature. This we can determine directly, when we have quite a large amount of the liquid, by inserting a thermometer in it.

3. The temperature of the vapor is nearly equal to the temperature of the plate.

4. Evaporation is less rapid than at the boiling point.

5. The spheroid is not in contact with the hot plate. This we can easily see on looking closely. Between the liquid and the plate is vapor, superheated steam, referred to under 3.

6. The surface of the spheroid is bright and silvery.

The following table illustrates points 1 and 2. The degrees are of Celsius:

	Least Temp. of Plate.	Temp. of Spheroid.	Boiling Temp.
Water.....	142°	96.50°	100°
Alcohol.....	134 "	75.05 "	78.26 "
Ether.....	61 "	34.25 "	35. "
Chloride Ethyle.....	.....	10.05 "	12.50 "
Sulphurous Acid.....	35 "	-10.05 "	-10.08 "

With regard to point 4, experiments gave the following results:

To evaporate 0.10 grammes of water, it took 207 seconds when the temperature of the plate was 200° Cel.; 91 seconds, when it was 400°; 73 seconds, at a dull red heat; 50 seconds at a full red heat; while at the boiling point it took only 4 seconds.

Many reasons have been propounded to show why the spheroid doesn't become hotter than it is. Boutigny supposed that the heat from the plate was reflected by the bright surface. Thus, if we place a bright object before a fire, it doesn't get very hot; and as the spheroid does not touch the plate, it is not heated by conduction.

Boutigny thought that many boiler explosions might be explained from these facts. The water in the boiler assumes the spheroidal state, and when the heat is lessened an explosion occurs. It is difficult to understand how it can get in this state. But practical men of note have supported the assertion that it does so according to all appearances.

Curious Experiments.

If we thrust a white-hot iron rod into water, we can see that it remains white-hot under the water for some time, and the boiling does not commence for several moments. This phenomenon is the same in character as the above. So are the following:

Boutigny (and after him many others have done the same thing) thrust his arm into melted iron without having it burned, having previously moistened it. Blacksmiths have been known to lick white-hot iron without getting their tongues blistered, as would be the result were the iron not so very hot. Any one can try a simple experiment of the kind which does not demand so much nerve. If we tie the finger of a glove on a stick and thrust it dry into melted iron, it is charred; if we wet it first, it is not charred, and we can see that the iron does not come in contact with it. In all these experiments, the heated liquid and the arm or glove do not touch, but are separated by vapor, as in the spheroid of liquid over our heated plate. And in the last case, if we move the stick rapidly through the melted iron, we find that it is charred on the side which is towards the front, for here the pressure has removed the vapor.

The fact that the temperature of the spheroid is below the boiling point of the liquid enables us to perform other curious experiments. Thus, sulphurous acid boils at a very low temperature. Boutigny dropped this substance in a hot crucible and into it, when in the spheroidal state, inserted a little vessel holding water. The water was frozen, although the outer vessel was red hot. In the same way, by using solid carbonic acid, Faraday has even frozen quicksilver in a red-hot crucible. This is possible with many other substances, where we can get the boiling point of one near the freezing point of another.

The lecture was illustrated by a number of experiments, which made it particularly interesting to the audience.

VERY useful and convenient is the new invention just patented—a wire spring to secure ladies' veils to their bonnets.

A PAPER MILL is projected at Reno, Nevada.

A Whaling Incident at Monterey.

The Monterey Democrat gives the following description of the narrow escape of the crew of a whale-boat a short time ago.

The party had struck and made fast to a California gray, a species of whale they describe as particularly vicious, and were approaching him for a shot with the bomb-gun. There were a lot of porpoises around the creature, which suddenly appeared to be "galloped" by them, and paused in his race. The boat, under sail and running swiftly, got unawares within the sweep of the leviathan's tail, and when the shot was fired a stroke in response from that tremendous engine crushed like an egg-shell the timbers of its bow. The sea rushed in through the fracture, and the boat being weighted down with her crew, an anchor and two heavy guns, sank several feet below the surface. The captain had been struck in the side by a fragment of the broken timbers, and was almost paralyzed. In the confusion, for a moment or two, no one thought to cut the rope by which the fish was fast, and it had resumed its flight. A tragedy was imminent, but luckily the captain, recovering himself, ordered the rope to be cut, and the immediate and most pressing danger escaped. The peril was, however, still considerable. Two of the crew could not swim, and they were all immersed to their necks in ice-cold water. Once or twice the boat rolled over, and they were in that perilous condition for half an hour before their consort, which was at some distance, heard their cries and came to their rescue.

A LARGE TURBINE.—The Carson Register, after a visit to the mill of the Yellow Jacket Co., at Empire City, thus describes the hydraulic motor:—The water, used to run the mill, passes through the large flume (14 x 4 feet), which also supplies the Mexican mill, one mile above. At present 5,350 cubic inches of water per minute pass through a 63-inch Lafell (or American double action) turbine wheel—the largest one in use on the Pacific Coast. The pedicle of this wheel is surrounded by an air-tight curb, so constructed as to create a suction below and give double force to the water pouring into the wheel. The parts are so accurately adapted to each other that the turbine utilizes the power so as to produce an effect equal to about 90 per cent. of the power expended. On the upper part of the perpendicular shaft of this wheel is affixed a cog-wheel fitting into a similar one fastened upon a horizontal iron shaft. To the end of the latter shaft a pump-rod is attached, which hoists all the water used in the batteries, pans, etc., while in the center of the shaft is a large wooden drum or band-wheel, over which passes a leather belt 30 inches wide and 125 feet long. This communicates motion to all the machinery in the building, save the pump.

FISH.—The Humboldt (Nev.) Silver State urges more stringent laws against the indiscriminate slaughter of fish, and more active measures for stocking streams. It says: The experiments made by Col. Evans, of this place, have demonstrated the entire feasibility of introducing into our mountain streams any of the varieties of fish which are found in the large bodies of water in the State. He has on his place several ponds now filled with at least three varieties of mountain fish, and finds that they thrive wonderfully and increase with astonishing rapidity. We mention these facts to show the feasibility of growing fish in our mountain streams, now destitute of them.

ERMINE.—Mr. Sanders, an agent of the South Yuba Canal Co., in Bear Valley, yesterday sent down an ermine, or white weasel, which was killed in that locality a day or two since. The color of this animal is brown in summer and changes to pure white in the winter. The skin is highly prized for trimmings of robes, and also for collars, muffs and cuffs. The lady who gets a genuine ermine set, considers herself fortunate. If Sanders can find many such, he will make a fortune. This specimen is probably the first found in California.—Nev. Trans. Jan. 21.

BORAX.—The Inyo Independent, of the 14th, says: A large deposit of borax has been discovered at or near Fish Slough, some five or six miles from the bridge across Owen's river, in Bishop Creek precinct. The borax is found in beds; is slightly impregnated with saltpetre, and after having been tested at several blacksmith shops, is pronounced of the best quality. The claim is owned by Brookman, Ryan, Westerville and others.

Scientific Press.

W. B. EWER.....SENIOR EDITOR

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. ROONE..

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, Feb. 4, 1871

Gold and Legal Tender Rates.

San Francisco, Thursday, Feb. 2, 1871.—Legal Tender
buying @90; selling @90½. Gold in New York to-day
111½.

Table of Contents.

Blood's Imp. Car Seats, Ill.....	65
MECHANICAL PROGRESS.—Peat for Gas; a Great Gun; Sewing Machines; Composing Ma- chine; Horse Shoe Rolls; Largest Litho- graphic Press in America.....	66
SCIENTIFIC PROGRESS.—The Eclipse; Electro- Motive Force of Metals; Graphite; Eozoon; Electro-Magnetism.....	66
Bound East—At Chicago; Flint Creek, Monta- na; First Railroad; First Locomotive; Desert Ship.....	67
MINING SUMMARY; Mining Shareholders' Di- rectory; Mining Share Market; New Incorpor- ations.....	68-69
INDUSTRIAL MISCELLANY.—Cotton Culture in Cal.; McCormick Reaper and Mower, Ill.; Salt Making in Alameda; Grape Culture in the Foot-Hills.....	70
Vaporization and Elastic Force of Steam; Whal- ing Incident; Large Turbine; Fish; Ermine; Borax.....	71
Formation of Gold Nuggets Ill.; Concerning Mines; Mineral Lands and School Land Grants.....	72
Cheap Country House; List of Patents; Notices of Recent Patents; Miners' Convention.....	73
Peru Railroads.....	73
HOUSEHOLD READING.—The Skin and its Func- tions, Ill.; Eating Pork; Domestic Receipts; Mechanical Hints, etc.....	74
Notes of Travel in San Joaquin County; Tax ing Deeds.....	76

Concerning Mining.

A pamphlet has just been issued by Mr. Almarin B. Paul (well known to the mining community as one of the oldest quartz miners on this coast) which sets forth the advantages of his new process, both in a metallurgical and in a mechanical sense, and which contains strong certificates that really remarkable results have been obtained by Mr. Paul's method. Our purpose is not, at present, to dwell on the merits of this process, of which we have spoken from time to time as fresh results were obtained by practical working; but we think it proper to call attention to some of the remarks, in the pamphlet, on mining in general,—remarks which are worthy of consideration as coming from one exceedingly well acquainted with the needs and short-comings of our mining interests.

WHY MINING HASN'T PAID BETTER.

In the course of his remarks, Mr. Paul gives several reasons for the failures of many enterprises. He says, in this connection:

"Look at the Pacific States and Territories, abounding with more mineral wealth than any portion of the civilized globe, and yet the cry is, 'Mining can't be made to pay.' Are these vast riches thrown broadcast for nothing? That more has not been made out of mining, considering the amount of capital invested, is, at first blush, surprising; and yet, when we stop to examine into the condition of the business, we are not so much at a loss. What pursuit is there that stands the same amount of ignorance, recklessness and expense, as the majority of mining enterprises?"

"Failures may often be attributed to the high rate of labor, but a critical investigation will also show that it may more frequently be attributed to: 1st—Too extensive as well as too expensive machinery on too small developments of positive property. 2d—Too much expenditure in corporate associations for speculative purposes, and too little for practical mining. 3d—Too small a percentage of metal saved after heavy expenditure for extracting and raising ores.

"That mining should be the most extensive business on this coast all will admit, and that it can be made the most profitable, I am firmly convinced, but not after this reckless system of the past. We must go slower, calculate closer, and work ores better."

THE WASTAGE OF PRECIOUS METALS.

On this important point, too much stress cannot be laid. In the course of his re-

marks, Mr. Paul opens the subject of the loss of silver associated with the gold, deserving the credit of being the first of our California miners who has undertaken to clearly demonstrate the fact.

"The wastage of precious metals, by our present mode of working, has been the cause of a general complaint, and so serious has been the loss that Congress contemplated interfering and making it obligatory upon operators to give more attention to their recovery, to prevent wastage and increase the product.

"That there has been still too great a wastage of precious metal all admit; not only is this in our gold in gold mining, but in the silver associated with the gold. This fact is not generally understood, as California miners are not accustomed to getting silver with the gold, a thing precluded by their present mode of working. An investigation will disclose the fact that nearly all the gold ores California contain no meager percentage of silver. The same may be said of the 'gold ores' of other States and Territories. By way of illustration the following assays are given:

	Gold.	Silver.	Total.
Ore from Mariposa County.....	\$12.06	\$4.90	\$16.96
Sulphurets Washington Mine.....	81.40	32.06	113.46
Blanket Washings.....	4.13	6.77	10.90

"The yield of Quartz Mountain ran 9 per cent. silver. The ores of all the counties of California carry silver, and my experiments show they run from 3 to 50 per cent. of the yield.

"The closer the concentration from batteries, the higher is the percentage of silver. It is time we were investigating more closely, and outgrowing this rushing system of mining, and, instead of sluicing our silver and gold down streams, seeking modes of working that will produce less wastage. As far as California is concerned, I am satisfied that not more than 40 per cent. of her gold is extracted. The present great depression in the mining interest proves my position true. If I am in error, why is there not more success? Why so much poverty amidst so much wealth? The ore assays well, showing that metal is there. Now why don't they get it? The fact is, as before expressed, we are not working for gold or silver, but to crush rock."

THE CONDITION OF THE GOLD.

Mr. Paul's opinions are given by the following extracts:

"Our present general system of gold mining is based upon the idea that gold is mainly coarse, while examination will show that the high percentage is in atoms finer than flour itself. In my experiments gold has been taken up so fine that in distilled water it would not precipitate in less than from five to ten minutes. Can you save gold of this kind by running water down stream? Again, can you obtain the gold of this fineness, without minute reduction? Therein lies the secret of high assays before working, and small returns after.

"Gold in its matrix, according to the highest authorities, is in a metallic condition. Such being the case, the first requisite is minute reduction, to the fineness of the gold itself, in order to release it. Gold in quartz of gravity enough to resist the pressure of any stream of water is the exception, and this is the aggregating of finer particles, the primary simple condition, in my opinion, being flour or powder of gold. It is the flour of gold we must seek to obtain, to get the wealth of our ores."

THE CONDITION OF THE MINER.

"The condition of the majority of miners is certainly very remarkable, all things considered. There are thousands in California, Nevada, Montana, Colorado, Arizona, and Idaho, possessing valuable mines, and in that sense have real wealth, and yet the majority possess little money, and are to all practical purposes poor. Now to reverse this state of things I have given much time and thought, and am convinced the evil arises from five facts which I will enumerate.

1st.—Too much waiting for capital. 2d.—Too much seeking for thousands instead of constantly putting in time for dollars. 3d.—Too much ideal valuation instead of estimated value by the development or profitable production. 4th.—Too little cooperative enterprise, whereby they could become independent of capital. 5th.—The lack of a correct system of associated labor and capital, where both shall be fully protected and equally rewarded."

Mr. Paul says truly that a cheap and efficient process will remedy these evils in great part and lead to most beneficial results. Naturally, he thinks his process is the one thing needed. For this point, we refer our readers to the pamphlet in question.

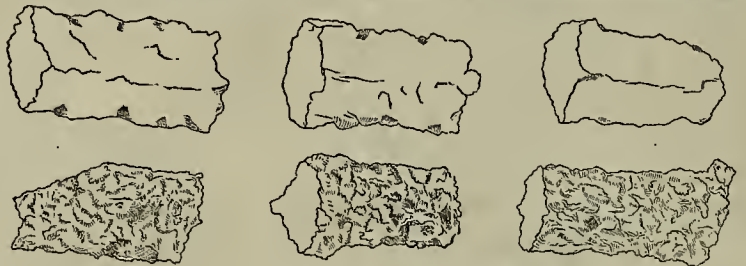
Formation of Gold Nuggets.

The formation of gold nuggets has been accounted for in various ways. At first the theory of their having come from veins which had been degraded and broken up, was generally accepted. Then the occurrence of large nuggets in drifts, of gold of a high standard, led to the idea of their growth in the alluviums, by successive layers of gold deposited from solution. This theory has lately had some able supporters, and an interesting article, taking this side of the question, was published in the PRESS of September 24th, 1870.

Mr. R. Brough Smyth in his most excellent work on the Gold Fields of Victoria, dissents from this last opinion, and in order that our readers may have both sides of the question, we propose giving his reasons in a brief article.

The purity of alluvial gold may be reasonably explained by the fact of its having been exposed for long periods to the action of water and atmospheric air, whereby the silver, copper, iron, etc., which are alloyed with the gold in the veins, have been decomposed and removed.

As to the size, large pieces of gold have been found in quartz veins. That we have not found as many large pieces in these as in the alluviums, is just what might have been expected. Every superficial foot of



auriferous drift represents many thousand feet vertical of veins, and until we shall have explored the existing veins completely and worked them to a depth equal to that operated on by the denuding forces of past ages, we cannot say whether or not the proportion of nuggets found in the alluviums is in excess. Scarcely any large nugget unearthed has not had a great quantity of quartz mixed with it; and it is reasonable to conclude that nuggets have been formed in the veins in the same manner and at the same time as other smaller pieces of gold.

The hundred weight of gold discovered on Dr. Kerr's station, in New South Wales, was taken from a vein which cropped out on the surface. The largest of the blocks was about a foot in diameter and weighed seventy-five pounds gross. Out of this piece sixty pounds of pure gold were taken. The Blanche Barkly nugget contained two pounds of quartz, clay and oxide of iron. Two large nuggets found at Dunolly weighed 2,952 ozs., and presented gold distributed through a rust-colored matrix. The Lady Hotham nugget contained much quartz and sulphurets of iron. Every nugget, large or small, which has not presented indications of having been much worn, has born with it proofs that it had been broken out of a vein.

Much stress has been laid on the fact that nuggets are sometimes found at a considerable distance from a quartz reef; but it has not probably been considered that the reef whence the mass was derived may have been completely carried away, and that the origin of the gold may not have been in what is now the nearest reef. Floating masses of quartz, such as found at Inglewood, may have contained many nuggets, and where the gold they contained was set free, we should look in vain for the reef. We have also to consider the conditions under which a mass of gold might be moved to a great distance when imbedded in a rock of low specific gravity.

It may be suggested, that if nuggets have been found in alluviums and tertiary strata, through the deposition of metallic gold from the meteoric waters which percolate the drifts, during the relatively short periods which have elapsed since the formation of these strata, it is even more probable that the same meteoric waters, percolating through and saturating the older sedimentary rocks and their intersecting quartz veins, should have formed, during the lapse of countless ages, quite

large masses of gold around nuclei in the many cavities of these rocks. This seems a just conclusion. It is hard to believe that the force which is active in modern times, was passive in remote periods.

Perhaps more weight might be attached to the theory alluded to, if these masses of gold were found only in deep leads (deep placers); but we find large nuggets protruding from the soil, buried only a few inches, and lying on the bed-rock in the most recent gravels,—in places, in short, where they could not have been subjected to the action supposed by the theory.

Mr. George Foord, admittedly one of the highest authorities on all questions relating to the chemistry of gold, says on this point: A good deal has been said and written concerning the formation of nuggets by the coalescence of grains of gold in the alluvial state. No one can say that this has never taken place, but my opinion leans very little to this view. The physiognomy of nuggets points almost invariably to their position in the lode. Their perfect or almost perfect uniformity of composition indicates also the same distinctly. So does the attached matrix. To give an example, I would instance a series of three large nuggets consecutively found at Tarrangower. These had one very rough side and one comparatively smooth side; and although found separately, the general characters were preserved throughout the three, so as to leave little doubt of their being elements of one series, so to speak, and derived from a vein in the rock, the two different kinds of surfaces being counterparts of the rock surfaces on which the gold had been originally depos-

ited, somewhat according to the engravings given above.

In dealing with questions of this nature, scrupulous—almost painful—accuracy in the observations is indispensable; and it is necessary that the observations should be numerous as well as accurate. The many opportunities of examining and testing the character of the gold in the form of nuggets have been let slip in times past, but we may naturally hope that extraordinary care will be taken in future to collect and record the results of experiments.

Mineral Lands and School-Land Grants.

Application having been made by outside parties to purchase from the State the one-half school section which embraces the Keystone and other mines, whereby the purchaser would have obtained three mines, worth at least \$1,000,000 for \$400, Commissioner Wilson has rendered an excellent decision on the matter. He says:

It appears from the papers in this case that the mining claim was located in 1864, and no survey of the township made until 1870.

The said mining premises therefore formed, at the date of said location, a portion of the unsurveyed public domain which, by the first section of the Mining Statute aforesaid, is declared to be "free and open to exploration and occupation by all citizens of the United States, and those who have declared their intention to become citizens;" and it of course follows that they were in the occupancy of the claim at the time of the survey by virtue of the authority conferred by said statute; and if it be now ascertained since the Government surveys have been extended, that the premises are within a school section, a circumstance of which the miners could not have previously been cognizant, it is held that their right to the execution of the said statute of July 24, 1866, is not effected, and that upon a compliance with its provisions the applicants shall be entitled to a survey and patent, the State of California being entitled to indemnity in other lands for the area thus patented.

CALAVERAS LANDS.—Lands in Calaveras county are held at high prices which were almost worthless before the railroad started.

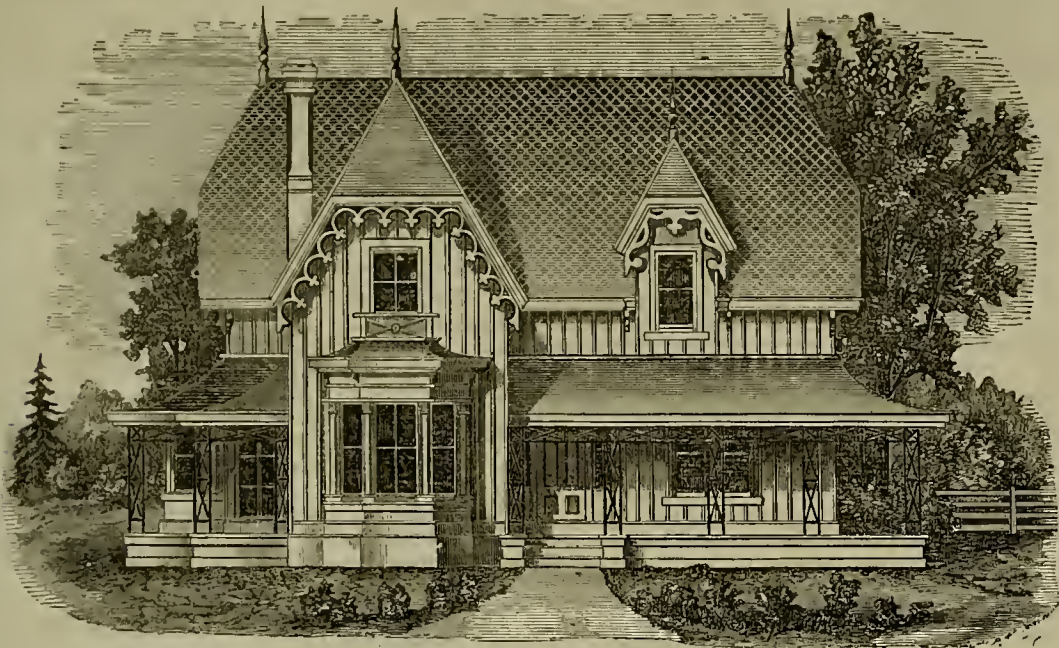
A Cheap Country House.

We present our readers to-day with the plans of a neat country house, adapted for a dwelling of rather moderate cost, and well suited for a village or suburban resi-

very convenient also in wet seasons. As the accompanying design was prepared for a country house, all these convenient arrangements have received particular attention, at the same time that economy in construction has been kept in

conformity with the dining room by sliding doors, also projects, and is furnished with a bay window similar to that in the dining room, looking north, south and west. These rooms are each 16 feet wide and 18 feet long, and furnished with fire-places.

propose to show to a still further extent. There is much room for improvement in the matter. A farmer's house now is apt to be a very unwelcome looking edifice, a sort of a box in which to stow himself and family away, without much regard to the looks of the box or the comfort of the occupants.

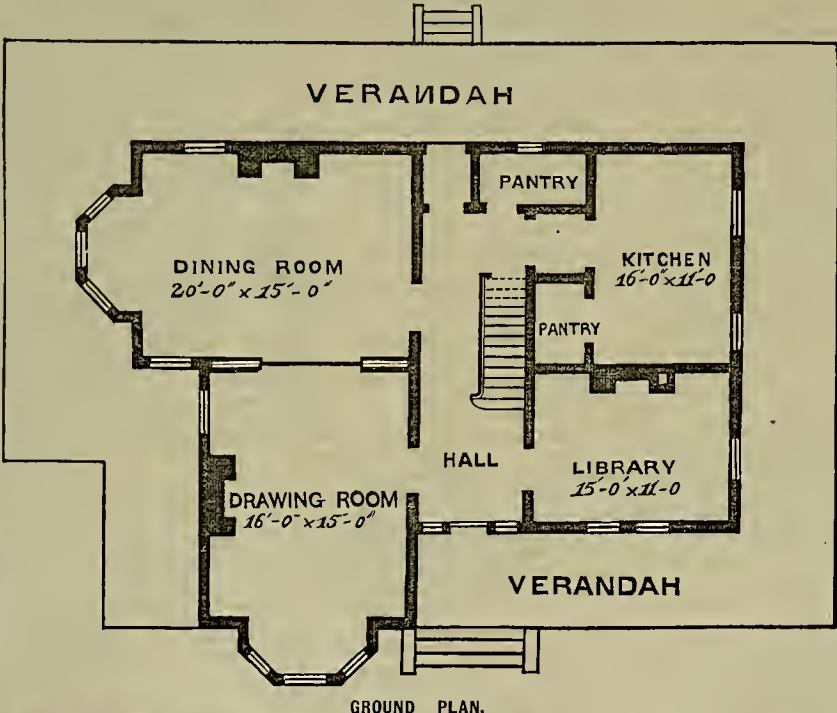


PLANS OF A CHEAP COUNTRY HOUSE.

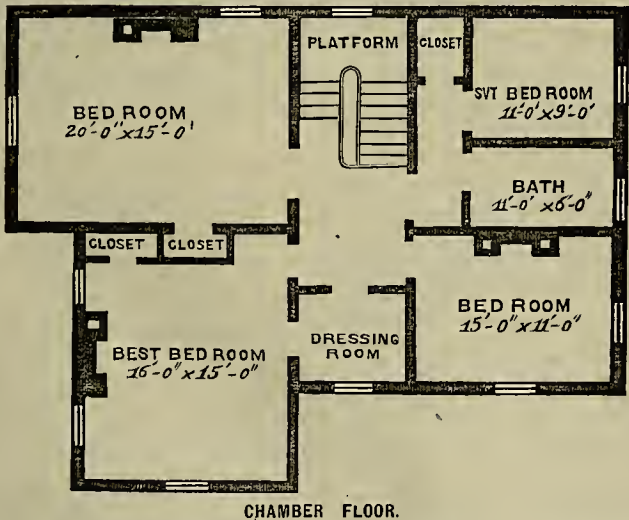
dence, or even for a farm house, although it lacks a woodhouse, which, however, can easily be added.

In the interior, too little attention has been given to architecture. Our farmers' houses are too often very homely, ungainly structures, not at all inviting to the eye. Now we believe in making one's home as attractive as possible, without going to great expense. That one can have a pretty residence, which he can well be proud of, and still without necessarily expending large sums of money, is shown by the present illustration. We propose giving a number of such designs from time to time.

It is very im-



To the right of these rooms is a spacious hall, nine feet wide, running right through the house from back to front, in which are placed stairs leading to the upper rooms. Opposite the drawing room is the library furnished with a fireplace. In the rear of the stairs and opposite the dining room is the kitchen, connecting with main hall by a short passage, and on each side of this a pantry—one opening out of the kitchen and one off the main hall. On the first floor—the chamber floor—there are five bed rooms, and a dressing room connecting with the best bed room, and three wardrobes. The three principal bed rooms are provided with fire places. Although the up-



per story is termed a half one, the bed room ceilings are ten feet high, and only a small part of the slope appears in the rooms.

The exterior will have a very pretty appearance, broken up as it is with projections, bay windows, verandah and steep-pitched roof. Such a house, though commodious and ornamental, need not be an expensive one. If properly built with timber and placed on a brick foundation, it would last for many years, and if due regard were paid to the selection of seasoned lumber and the walls properly plastered down to the floor, a warm and durable house would be the result.

It will be seen by referring to the elevation, that it is the intention to build this house of timber, and frame in the usual manner, the sills of the frame resting on brick or stone foundations, whichever may be most conveniently procured in the locality. The outside will be sheathed with one and a quarter tongued and grooved and upright boards and the joints covered with inch by three-inch batten. The interior can be finished to suit the tastes of those who may build.

There is no reason why our farmers should not have as nice and comfortable dwellings as anybody else. Of course we mean within reasonable bounds. Nor is there any reason why they should not develop a taste for the beautiful. These little attentions to ornamentation do not necessarily require large expenditures, as we have shown in the present article, and

portant to secure, in connection with a dwelling house, plenty of verandah room and large and airy apartments capable of easy and complete ventilation. These appendages, besides being ornamental and giving relief to plain walls, are pleasant as an out-door retreat in hot weather, serve to keep the interior cool, and will be found

view. By referring to the drawings, it will be seen that the house is entirely surrounded by a wide and airy verandah, the roof of which is supported by light lattice posts. The dining room projects from the main wall and is furnished with a bay window, where views can be had to the south, east and west. The drawing room, which

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

- (FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)
- FOR THE WEEK ENDING JANUARY 24TH.
- TYPE-CASTING MACHINE.—William Wallace Dunn, San Francisco, Cal.
- TRUSS.—Alexander Folleau, San Francisco, Cal. Antedated Jan. 13th, 1871.
- BOOT-STRETCHER.—Isaac M. Myers, San Francisco, Cal.
- ATMOSPHERIC-PRESSURE ATTACHMENT FOR DENTAL PLATES.—John H. Beers, San Francisco, Cal.
- VARIABLE CUT-OFF FOR STEAM ENGINES.—William B. Cross, Sacramento, Cal.
- TREATING FRUIT TREES TO PREVENT THE RAVAGES OF INSECTS, ETC.—Samuel J. Everett, Mahoney City, Cal.
- OPERATING CUTTER FOR STEAM PLOWS.—Oliver Hyde, Oakland, Cal.
- ELASTIC TIRE FOR TRACTION ENGINES.—Oliver Hyde, Oakland, Cal.
- EMBALMING.—Benjamin F. Lyford, San Francisco, Cal.
- PLOW.—Jackson P. Pritchard, Conn Valley, Cal. Antedated January 14, 1871.
- MILLSTONE-DRIVER.—John J. Tomlinson, Bozeman City, Montana Territory.

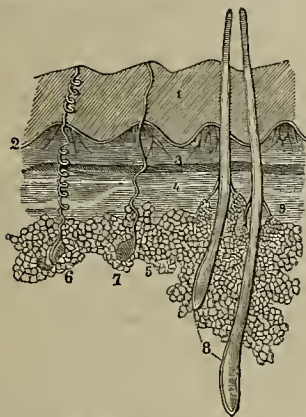
Notices of Recent Patents.

- SAWING MACHINE.—Per Johnson, Columbia, Cal. The object of this invention is to make improvements in mounting and operating saws, and also to provide a portable sawing machine. The device consists of a box or cart-body, which is provided with wheels on which the apparatus is moved when a change of location is required, and which serve as balance wheels when the saws are being operated, the machine then resting upon legs which, at other times, are folded up against the body. Connected with the shaft of these wheels by belting and other appropriate means, are the saws which are secured in a suitable frame and are placed at suitable distances apart to cut wood into lengths for fuel. By the combination, a person standing at the rear of the cart will be able to drive the saws at great speed with little exertion, as the heavy cart wheels serve as fly or balance wheels to keep up the movements of the saws. The idea is novel and the contrivance is certainly very neat.
- CAR COUPLING.—J. R. Palmer, Mariposa, Cal. This is an ingenious invention, which enables the coupling of cars to be effected automatically, and the uncoupling to be done without the necessity of going between the cars. It will be illustrated in the PRESS.
- EXPLOSIVE COMPOUNDS.—J. Hafenegger, San Francisco. This invention relates to certain compounds for blasting, employing ingredients to secure quick and complete combustion, and thus a more effective blast, with but little smell or smoke; also to an improved cap or firing tube, which shall be both safer and cheaper than those commonly employed. Mr. Hafenegger has diligently studied the matter of explosive compounds for years, and is well known as the inventor of a large number of blasting mixtures.
- COMPLIMENTARY TO THE PACIFIC COAST.—The Stetefeldt furnace is to be erected at Ocker, in the Hartz Mining District, Germany. The introduction of amalgamation, in place of smelting, is talked of. That an American—a Pacific Coast—process should supersede a German process in Germany, is a fact on which we may be permitted to talk a little proudly.

HOUSEHOLD READING.

The Skin and its Functions.

The advantages of bathing and friction will be seen and understood by considering the structure of the skin, which cannot be explained by a verbal description. We therefore insert a cut, drawn from a section of skin as seen under a microscope, and clearly delineating the different parts of this complicated and important organ, and showing the necessity of cleanliness in order to the perfect performance of its functions. We copy, with slight modifications, from a work written by Dr. Bellows, entitled: "The Philosophy of Living."



1. Cuticle, or Scarfskin.
2. Rete Mucosum, or Mucous Web.
3. Corpus Papillae.
4. True Skin.
5. Cellular Membrane, or Fat Cells.
- 6 and 7. Perspiration Glands and Ducts.
8. Roots of Hairs.
9. Oil Follicles.

1. *The Cuticle or Scarfskin* is the dry membranous outside covering of the body, consisting of laminae of hardened mucus, or albuminous matter, without nerves or blood vessels, and therefore without feeling or life, except a kind of vegetable life. It is, when kept clean and fresh, as it may be by daily ablution or friction, spongy and porous, so as to admit through it freely the perspiration, &c., which exudes from beneath; but when neglected becomes hard, and filled with concreted impurities, which obstruct the natural secretions, and become the source of much derangement of the system, and many diseases both of the skin and other organs. It forms into small microscopic scales, as we can see at any time by applying friction or a moist cloth to any part of it, and is separated in blisters on the application of heat or irritating substances, as Spanish flies, mustard, &c.

2. *The Rete Mucosum, or Mucous Web* in which resides the coloring matter which constitutes the complexion, and which, in the Ethiopian, is black. Like the cuticle, it is not organized with nerves and blood vessels, and therefore not absorbed, and being covered with the cuticle, does not form scales. It therefore remains almost permanent, and letters and figures inserted with coloring matter like India ink, remain during life. It is this inertness that renders diseases of the skin so difficult of cure. In the cure of disease absorption is necessary; therefore those parts in which the absorbents are inactive, as in the cartilages bones, and rete mucosum, when once diseased are very slow of cure, the irritating matter being out of the reach of the absorbents.

3. *The Corpus Papillae* is that sensitive part of the skin in which resides the sense of touch. It consists of a collection of papillae formed by the extremities of the nerves and vessels; which, after having passed the true skin beneath, are grouped in little pencils or villi on a spongy erectile tissue. These villi are disposed in pairs, and when not in action are soft and relaxed, but start up erect when employed in the sense of touch. They are very readily seen when a blister has removed their covering, and give the acute sensibility which in that case is felt to the touch, the scarfskin being necessary to modify and blunt the sensitiveness of the uncovered papillae.

4. *The Deeper Layer, or True Skin.*—This consists of a dense collection of fibres, forming a firm stratum, interspersed with holes for the passage of nerves and blood vessels, and is mostly composed of gelatine;

and the skin of animals is therefore used for making glue. Gelatine, when united with tannin, forms a substance which is insoluble in water, and constitutes the leather for our boots, &c.

These four strata constitute the skin, which is united to the structures below by cellular membranes, which contain more or less adipose matter, or fat, which is represented by the little globules under the skin, marked 5. We shall continue this subject next week.

Up Country Letters.

A Few Words about Eating Pork.

DEAR READER:—I have been thinking of pork to-day. It happened in this wise: The farmer's wife was getting supper, and as the savory (suffocating?) smell of the frying pork met my olfactory nerve for the third time to-day, I asked the abrupt question of the good wife, "Why do you eat so much pork in the country?"

The red face and burnt eyes turned toward me as she answered, impressively, with upraised fork, "Well, it is the cheapest, easiest to get, and we like it best?"

I sat in my invalid chair and pondered. "Cheapest?" let me see. If they should make Johnny cake of the sour milk and corn they give the pigs; bake the apples, and feed them *first hand* to the family at every meal; give potato skins and refuse from vegetables to the live stock, which considers such food dainty morsels; feed the table crumbs to the chickens; would it really not be a cheaper way?

As to its being "the easiest to get"—with a butcher's cart passing the house daily. Surely she forgets the hard work, during "killing season," trying of lard, salting down, sausage making, smoking of the hams and sides; weary hours and days spent in preparing and preserving the entire animal for future use, certainly can't be called *easy*. I do not speak of the care bestowed on the living animal, fattening, etc. And as to their "liking it best"—recalling to mind the amount of fresh meat eaten individually and collectively at a single meal, when it is cooked, I begged to differ from her, but I was silent, thinking of the evil effects of pork eating on our people.

Common observation has long since set down the prevalence of scrofula, erysipelas, a variety of glandular and eruptive diseases, and even consumption, as resulting from impure blood, caused by eating the impure flesh of the hog; while our scientific men have discovered the existence of myriads of living animalcules, called *Trichinae*, which are found only in the hog, until taken into the human system by eating its flesh! Are not such facts enough to warn mankind to choose purer and better food than swine flesh.

A good story is told of Dr. Adam Clark, who, when desired to ask grace at a dinner party where a roasted pig graced one end of the table, suggested the possibility of God's blessing under the Gospel, what was cursed under the law!

One of these days, when I get stronger, I am determined to bring up this subject again to the good wife, and ask her, if after reading the scrap I send you for perusal, on the fatal effects of pork eating, she can conscientiously feed her children on *Trichinae*, even if they are cooked!

JEWELL.

BEE STINGS MECHANICALLY TREATED.

The *Scientific American* states that the poisonous effect of bee stings can be prevented, or at least considerably mitigated, by pressing over it the pipe of an ordinary trunk key. The reason is obvious. The pipe acting as an annular compress close to the puncture, forces the poison out. Could not this simple process be extended in its application to the bites of serpents and rabid dogs? The absorption and spread of the virus might thus be prevented, or at least retarded, until a physician could arrive with a more effective remedy.

RECONSTRUCTING POTATOES.

The French manufacture new potatoes out of old in the following manner: The potatoes are put into tubs of water and vigorously stirred about by the feet until the old dark skin has been rubbed off, when the tubers acquire a smooth and satin-like appearance. They are then dried, neatly wrapped in paper, and arranged in small baskets, which are sold in the markets for five francs each, as "new potatoes."

Domestic Receipts.

DYSPEPTIC'S BISCUIT.—Take Graham flour (wheat coarsely ground, without bolting) two quarts; corn meal sifted, one quart; butter, half a cup; sour milk to wet it up, and saleratus as for biscuit. Roll out and cut with a tea-cup and bake as other biscuit, and when cold they are just the thing for dyspeptics. And if the flour was sifted, none would refuse to eat them.

TO REMOVE GREASE FROM FLOORS.—To extract grease from old floors, apply a paste of wet wood-ashes, keeping it on several days, or cover the spot with pipe-clay. Grease on wall-papers, caused by persons rubbing their hands against it, is taken out by applying a cream of pipe-clay and water, leaving it to dry, and scraping it off. Stains on wall-paper may be cut out carefully with a sharp pen-knife, and pieces to match inserted with paste. When nicely done, it is, if not imperceptible, at least much better than black spots.

TO SOFTEN HARD WATER.—A small lump of quicklime dissolved in nine quarts of water, and the clear solution poured into a barrel of hard water; the whole will be soft water as it settles.

FOR A COUGH.—Where nothing better can be obtained, a strong decoction of the leaves of the pine, sweetened with loaf sugar. Take a wine-glass-ful. We often saw the same thing used, in the early days of mining in California, for the scurvy, contracted by long use of salt meat, and with good effect.

STRAWBERRY TOOTHWASH.—Pure strawberry juice, 4 ounces; tincture of orris root, 6 ounces; pure spirit, 3 ounces; tincture of rosemary, 1 ounce; tincture of cochineal, enough to color; mix thoroughly together, and filter. This compound is an agreeable and useful wash for the teeth and gums; removing the tarter from the former, and rendering the latter hard and healthy.

MOUTHWASH FOR SMOKERS.—Chloride of lime, 6 drams; water 4 ounces; agitate together one hour, filter and add pure spirit, 4 ounces; tincture of orris root and orange flower water, of each, 1 ounce.

TO PREVENT "MOTHER" IN VINEGAR.—Add a few drops of sulphuric acid to each gallon of vinegar, and it will thoroughly arrest farther vegetation of this kind.

Mechanical Hints.

PRESERVATION OF BRONZES.—Bronzes when placed out of doors too often become black and dirty, and cease to be ornamental. But it was observed in Berlin that those parts of a bronze statue which were much handled by the public retained a good surface, and this led to the conclusion that fat had something to do with it. An experiment was therefore tried for some years with four bronzes: one was coated every day with oil, and wiped with a cloth; another was washed every day with water; the third was similarly washed, but was oiled twice a year; and the fourth was left untouched. The first looked beautiful; the third which had been oiled twice a year, was passable; the second looked dead; and the fourth was dull and black. Perhaps public authorities in this country who have charge of statues and other adornments will profit by the experiments here described.

IMPROVED BRONZE MANUFACTURE.—Mr. J. L. Montefiore, of London, Eng., has recently devised an improved manufacture of bronze, in which phosphorus or a phosphoric substance is introduced during the process of melting the copper, tin and other metals which form the basis of the metal known as "bronze," whereby its quality in regard to elasticity, hardness, and toughness, is considerably improved as compared with the bronze manufactured in the ordinary way, as hitherto adopted.

POWER OF INDIA-RUBBER TO DEADEN SOUND.—*Chamber's Journal* gives this illustration of the power of india-rubber to deaden sound: "We once visited a factory where some forty or fifty coppersmiths were at work in a shop above our heads; but what was remarkable, scarcely a sound of their noisy hammering could be heard. On going up stairs we saw the explanation. Each leg of every bench rested on a cushion made of india-rubber cuttings. This completely deadened the sound."

HOUSEKEEPER.—It is a good plan to put new earthenware into cold water and let it heat gradually until it boils, then cool it again. Brown earthenware, particularly, may be toughened in this way. A handful of rye or wheat bran thrown in while it is boiling will preserve the glazing so that it will not be destroyed by acid or salt.

Life Thoughts.

A fox should not be on the jury at a goose's trial.

If an ass goes a traveling, he'll not come home a horse.

A good word for a bad one is worth much and costs little.

DESPISE not little temptations; for, rightly met, they have often nerved the character for some fiery trial.

MARSHAL SAXE used to say that in almost every dispute between a horse and a man, the horse was in the right.

RUN not after blessings, only walk in the commandments of God, and blessings shall run after you.

THE door between us and heaven cannot be opened if that between us and our fellow-men is shut.

THERE are two reasons why some people don't mind their own business. One is that they haven't any business, and the second that they have no mind.

A LITTLE second knowledge, with a great deal of care, goes further on a farm than great knowledge, half applied.

TRUST not the flatterer. In the days of sunshine, he will give thee pounds of butter; and in the hour of need, deny thee a crumb of bread.

A CLEAN TONGUE.—It is good in a fever, and much better in anger to have the tongue kept clean and smooth.

"God Bless You, my Little Fellow!"

A crippled beggar was striving to pick up some old clothes that had been thrown from a window, when a crowd of rude boys gathered about him, mimicking his awkward movements, and hooting at his helplessness and rags. Presently a noble little fellow came up, and, pushing through the crowd, helped the poor crippled man to pick up his gifts, and placed them in a bundle. Then, slipping a piece of silver into his hands, he was running away, when a voice far above him said: "Little boy with a straw hat, look up!" A lady, leaning from an upper window, said earnestly: "God bless you, my little fellow! God will bless you for that." As he walked along, he thought how glad he had made his own heart by doing good. He thought of the poor beggar's grateful look, of the lady's smile, and her approval; and last and better than all he could almost hear his Heavenly Father whispering: "Blessed are the merciful, for they shall obtain mercy." Little reader, when you have an opportunity of doing good, and feel tempted to neglect it, remember the "little boy with the straw hat."

GREATNESS AND GOODNESS.—It is not possible for us to make our children great, but we can do a great deal toward making them good. Great influences that we cannot understand, stretching over the whole span of our life, will make one man as great as a Mariposa redwood, and another as small as a dwarf-pear. Yet this, in its degree shall be as good as this, while the sun will shine, and the rain fall, and the blessing of heaven rest on both. But the possibility is that the little one may become not only good, but great. Goodness of itself may be greatness, as it was in Washington and Lincoln; or there may be greatness without goodness, as the vast catalogue of mighty men who have been the scourge and curse of the race can testify.—*Robert Collyer.*

WHAT'S THE USE?—What's the use of minding what they say? What's the use of lying awake nights with the unkind remark of some false friend running through your brain like forked lightning! What's the use of getting into a worry and fret over gossip that has been set afloat to your disadvantage by some meddlesome busy-body, who has more time than character? These things can't possibly injure you unless, indeed, you take notice of them, and in combining them give them character and standing. If what is said about you is true set yourself right at once; if false, let it go for what it will fetch, until it dies of inherent weakness.—*Termini.*

MEN'S happiness springs mainly from moderate troubles, which afford the mind a healthful stimulus, and are followed by a reaction which produces a cheerful flow of spirits.

A TROUBLED mind is often relieved by maintaining a cheerful demeanor. The effort withdraws its attention from the cause of pain, and the cheerfulness which it promotes in others extends by sympathy to itself.

See printed directions, which accompany each bottle.
Sold by all Druggists. f4-lm.

New Advertisements.

VAN NOSTRAND'S

Electric Engineering Magazine,

Commenced January, 1869.

Consists of articles selected and matter condensed from all the Engineering Scientific Serial publications of Europe and America.

The third volume of this Magazine is completed by the issue for December.

The growing success during the past two years demonstrates the correctness of the theory upon which the enterprise was founded. Communications from many sources prove that the Magazine has met a widespread want among the members of the engineering profession.

A summary of scientific intelligence, selected and sifted from the great list of American and European scientific journals is at present afforded by no other means than through the pages of this Magazine.

In the next volume, beginning with the January number, we shall commence some important improvements. Each number of the Magazine will hereafter contain something of value relating to each of the great departments of engineering labor.

More space than heretofore will be devoted to short discussions or elucidation of important formulae, especially such as have proved valuable in the practice of working engineers; our facilities for affording such items are extensive and rapidly increasing.

The progress of great engineering works in this country will be duly chronicled.

Selected and condensed articles, with their illustrations, from English, French, German, Austrian, and American scientific periodicals, will contribute to make this Magazine more than ever valuable to the engineering profession, and will afford a compilation without which the library of the working engineer will be incomplete.

112 Pages, Large 8vo. Illustrated Monthly.

Price \$5.00 a year in advance, single copies fifty cents.

Notice to New Subscribers.

Persons commencing their subscriptions with the 3d year (January, 1871), and who are desirous of possessing the work from its commencement, will be supplied with Volumes I., II., and III., neatly bound in cloth, for \$10.00, sent free by mail on receipt of price.

Notice to Clubs.

An extra copy will be supplied gratis to every club of five subscribers at \$5 each, sent in oncomitance.

D. VAN NOSTRAND.

Publisher, Importer and Bookseller, 23 Murray and 27 Warren street, NEW YORK. 5v23-4t

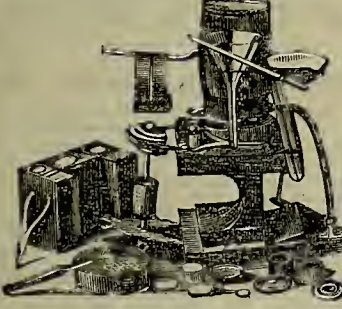
J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, etc., etc.

423 Washington street, San Francisco.

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a GOLD MEDAL at the San Francisco Mechanics Institute Fair of 1869.

Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.

Price with instructions, tools, and fluxes, \$100.

Practical Instructions in all kinds of Assaying, Discrimination and Analysis.

4v22-1am4c

MAGAZINES.	P. An.	
Harper's.....	\$4 00	
Atlantic.....		
Godey.....		
New York Ledger.....		
Blackwood.....		
Hours at Home.....		
Good Words.....	3 00	
Petersen's.....		
Arthur.....		
Lady's Friend.....	5 00	
Harper's Weekly.....		
Chimney Corner.....		
Literary Album.....		
London Society.....	6 00	
All the Year Round.....		
n III. Year.....	15 00	Year, Month, or Numbe

1000 Farms

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns' Rancho," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 433 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-sm5

PACIFIC RURAL PRESS.

Scientific Press Office, 414 Clay Street,

SUBSCRIBE! GET UP CLUBS!

Farmers, Horticulturists, Sericulturists, Stockmen, News dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.

Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO.

Publishers, Patent Agents, and Engravers,
414 Clay Street, S. F.

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

AND

Every Variety of Shafting,

Embracing ALL SIZES

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

HAMMERED IRON

Of every description and size

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron 9v14sm5p

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh,
Harrisburg,
Philadelphia,
and New York,

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington City.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,
4v22-1y San Francisco, Cal.

(TO BE PUBLISHED SHORTLY.)

'A Synopsis of British Gas Lighting.'

900 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of reference among

Companies,
Manufacturers,
Engineers,
Patentees, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be addressed to the Compiler,

JAMES R. SMEDBERG,

Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

26v21-4t

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREROOMS

of

George O. Whitney & Co.,

Nos. 317, 319 and 321

PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide. Prepared expressly for chlorinizing purposes, by A. T. Ladd, from ore taken from his celebrated Manganese Mine in Corral Hollow. Pronounced by Mr. Mognan of the Chlorinizing Works of Nevada city, and others, as the best they ever used. Crude ore sold in quantities at low rates. Apply to BLUXOME & CASSEBOHM, 20v21-3m No. 316 California street, San Francisco.

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansome St.

GEO. L. FAULKNER, Agent.

1v22-3mins

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSHILD, Secretary. 20v17

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorf streets,
27v16 SAN FRANCISCO.

Mining and Other Companies.

Owing to the time necessary to mail this present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is this very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company,

Sierra County, California.

Notice.—There are delinquent, upon the following described Stock, on account of assessment levied on the 27th day of Dec. 1870 the several amounts set opposite the Names of the respective Shareholders as follows:

Names.	No. of Certif.	No. Shares.	Amount.
John J. Roche.....	4	15	7 50
W H Tompkins.....	44	35	17 50
Geo Treat.....	54	500	250 00
Charles Adams.....	56	1000	500 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of December 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, by the Secretary, 37 New Merchants Exchange, San Francisco, on the 13th day of February, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. M. BUFFINGTON, Sec'y.

Office, 37 New Merchants Exchange, (third floor), California st., San Francisco, California. ja28

Continental Silver Mining Company—

Location of Works, near Hamilton, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 31st day of December 1870, an assessment of (\$1) one dollar per share was levied upon the capital stock of said Company, payable immediately to the Secretary, at the office of the Company, 302 Montgomery street, San Francisco Cal., in gold coin of the United States.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale by auction, and unless payment shall be made before, will be sold on Wednesday the 22nd day of February, to pay the delinquent assessment, together with costs of advertising, and expense of sale. By order of the Board of Trustees. H. H. BLAKE, Secretary. Office 302 Montgomery Street, San Francisco Cal. ja7

Deep Spring Milling and Mining Company—

Location of Works, Deep Spring Valley Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of January 1871, an assessment of \$1 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Treasurer at his office 306 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment be made before, will be sold on Saturday the 4th day of March 1871, to pay delinquent assessments, together with costs of advertising and expenses of sale. By order of the Board of Trustees. A. H. JORDAN, Sec'y pro tem. [340 Montgomery st., San Francisco Cal. ja28

El Refugio Petroleum Company,---Loca-

tion Santa Cruz County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company held on the 18th day of January 1871, an assessment of sixty five (65) cents per share was levied upon the capital stock of said Company payable immediately in United States gold coin, to the Secretary R. Wegener, No. 414 California street San Francisco California.

Any stock upon which said assessments shall remain unpaid on the 21st day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday the 14th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. WEGENER, Secretary. ja21 Office, 414 California street, San Francisco, Cal.

Jennie A. Consolidated Mining Company,

White Pine County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 31st day of December 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 27th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Sec'y. Office, Room 37 New Merchants Exchange, San Francisco, California. Jan7

Kincaid Flat Mining Company, Tuolumne

County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of January 1871, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 10th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Sec'y. ja14 Office, 220 Clay st., San Francisco.

Nevada Land and Mining Company—Lo-

cation of Works, Stepto, Johnson & Latbam Antelope and Clifton District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 19th day of January, 1871, an assessment of two and one half (2 1/2) cents per share was levied upon the Capital Stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 20th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of this Board of Trustees. WM. H. WATSON, Secretary. Office; Room 5, No. 302, Montgomery street, San Francisco, California.

Noonday Silver Mining Company.—Loca-

tion of Works—White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 19th day of January, A.D. 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary of the Company, Room 5, Hayward's Building, No. 419, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 23rd day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 27th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

C. E. ELLIOTT, Secretary. Office, Room 21, Hayward's Building, 419, California street, San Francisco, California.

Ophir Copper, Silver and Gold Mining

Company—Location of Works, Ophir Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the Thirtieth day of December A. D. 1870, an assessment of forty cents per share was levied upon the capital stock of said Company payable immediately, in United States gold coin to the Secretary, at the Company's office, No. 314 California St. San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 27th day of Feb. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. BRUSH, Secretary. Jan7 Office No. 314 California Street.

Placer Gold Mining and Canal Company—

Location of Works, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of January 1871, an assessment of \$5.50 per share was levied upon the capital stock of said Company, payable immediately in United States Gold coin, to the Secretary at his office 24 Post Street, San Francisco Cal.

Any stock upon which said assessment shall remain unpaid on Wednesday the fifth day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 11th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees. J. S. HALLEY, Secretary. ja14 Office, 24 Post St., San Francisco, Cal.

St. Patrick Gold Mining Company—Loca-

tion of works, Ophir District, Placer County, Cal.

Notice.—There are delinquent, upon the following described Stock, on account of assessment levied on the twenty-seventh day of Dec. 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names	No Certificate	No. Shares	Amount
John Center, Trustee.....	29	833	\$333
John Center, Trustee.....	30	167	167
J W Gashwiler.....	27	100	100
J W Gashwiler.....	25	100	100
J W Gashwiler.....	23	100	100
J W Gashwiler.....	6	500	500

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of December 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the Office of the Company No. 612 Commercial Building California street, San Francisco, Cal. on the 30th day of February 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent Assessment thereon together with costs of advertising and expenses of a le. T. F. CRONISE, Secretary. fe4-td Office, No. 413 California st., San Francisco, Cal.

Taylor Mill and Mining Company—Location

of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 31st day of January, A. D. 1871, an assessment of fifty (50) cents per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixth day of March, A. D. 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of March, A. D. 1871, to pay the delinquent assessments, together with cost of advertising and expenses of sale. By order of the Board of Trustees. SAM'L S. MURFEY, Secretary. Office, 520 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. fe1-5w

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make assays of all kinds of Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lys

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
street, San Francisco. 3-47THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
34-17-47UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS.

Donbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO

EUREKA FILE WORKS.

311

Bet. Fremont and
Beale,

MISSION ST.,

SAN FRANCISCO

T. G. DURNING, Superintendent.

New Files of every description made to order. Files
re-cut and warranted equal to new. Reaper and Mower
sections, bars, etc., made to order at short notice. Or-
ders from the country promptly attended to. 22v22uf

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one
of the safes, containing Miller & Haley's books and pa-
pers, stood the test PERFECTLY,—to whom all interested
are referred. This safe is built at the

CALIFORNIA TOOL WORKS,

143 Beale Street, bet. Mission and Howard. All kinds of
Edge and other Tools made to order. Agricultural ma-
chinery repaired. Job grinding and polishing by steam.
All work warranted. Orders promptly attended to.
22v22-3m J. WEICHBART, Proprietor.McAFEE, SPIERS & CO.,
BOILER MAKERS

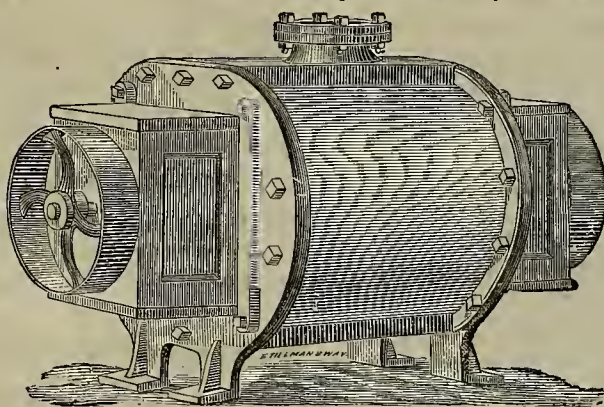
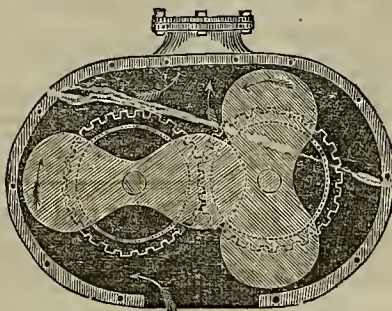
AND GENERAL MACHINISTS,

Howard St, between Fremont and Beale, San Francisco.
2v21-tf

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864; July
2d, 1866; and Oct. 9, 1866.ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
Now in use.One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.THE
CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

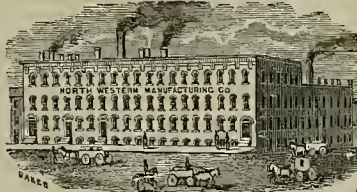
DOUBLE PLUNGER STEAM PUMPS,
FOR DRAINING MINES.

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

NORTH-WESTERN MANUFACTURING COMPANY.

Jefferson Street, bet. Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,
Brass and Iron Goods for Steam and Gas Fitters and Engine Builders,
Cast Iron and Malleable Iron Fittings and Castings.Steam Warming and Ventilating apparatus for public and private buildings. Hoist-
ing Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL

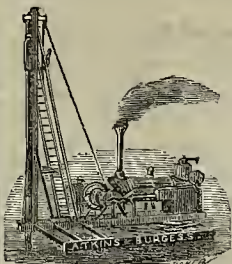
GEARING AND

GENERAL MACHINERY,
CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to.

3v22-3m

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS.

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters, Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
16v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gears of superlative tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Connec-
tions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. -28

J. H. WEED,

V. KINOWELL.

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-qr

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
powder, thus making it vastly superior to any other
compound now in use.A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING
PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.
CHAS. WEST,
No. 139, 3d Street, S. F.

NEVADA METALLURGICAL WORKS,
19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHARDT.
Ores Crushed, lumped and Assayed.
Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.
26v21-3m

CALIFORNIA ASSAY OFFICE
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager
J. A. MAITS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical Chemist,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint),
SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.
Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.
11v21-3m.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

HENRY G. HANKS,
Assayer and Chemist,
AND DEALER IN
Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.

Baltimore Copper Company.
Highest Price paid for Copper, Ore, 15 pr. ct.
Regulas, and Bars.

DANIEL MEYER, 210 Pine Street,
23v21-3m SAN FRANCISCO.

NOTICE.
THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.
GEO. W. SMILEY,
24v21-3m 424 Montgomery at., San Francisco.

MILLER & HALEY'S MILLS,
BERRY STREET,
Between Third and Fourth Streets, S. F.

Having been hurried out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of ash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.
Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.
19v21-3m **MILLER & HALEY,**

New Patent Law.
The New U. S. Patent Act of 1870 will be sent FREE on receipt of postage stamp to inventors and patentees, by DEWEY & Co., publishers, patent agents and engravers, San Francisco.

R. H. McDONALD & CO.,
WHOLESALE DRUGGISTS,
Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure
Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.
etc., on the Pacific Coast. Buyers are
Particularly Requested
to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3m S. W. Cor. Market and First streets.

The Merchants' Exchange Bank
OF SAN FRANCISCO.
Capital, One Million Dollars.
A. N. COLEMAN.....President.
R. N. VAN BRUNT.....Cashier.
BANKING HOUSE,
No. 415 CALIFORNIA STREET.
26v20-qy

YALE LOCKS.
SECURITY.
FULL SIZE OF KEY.
BEST & CHEAPEST.
FOR SALE BY THE
HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.
Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND DRAWER LOCKS,
POST OFFICE LOCK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOOKS,
UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.
OSCAR V. GERZABEK, 503 Market Street,
Box 1051, San Francisco.
Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than the lowest.
24v21-3m

Swamp Land Reclamation.
—THE—
California Peat Company,
OWNERS OF THE
Roberts' Steam Ditching Machine,
are now ready to take contracts. They are prepared to construct
Ditches and Levees.
of any desired dimensions. Terms easy. Address,
J. B. TOWNSEND, 836 Clay Street,
P. O. Lock Box, 814.
23v21-1m

GIANT CEMENT.
GIANT CEMENT.
A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also applying Leather Belting and patching Boots and Shoes. This Cement possesses an extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.
MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

THE ASPHALTUM PRESSURE PIPE COMPANY,
HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in large quantities,
Are now Prepared to Take Orders AND MAKE CONTRACTS.
This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

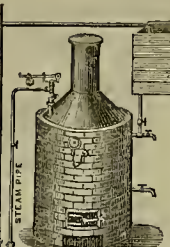
JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.
24v21-3m

Machinery.

STURTEVANTS
PRESSURE BLOWER,
Are for sale by
Berry & Place,
112 California st., San Francisco,
who have the different sizes always in store. 4v22

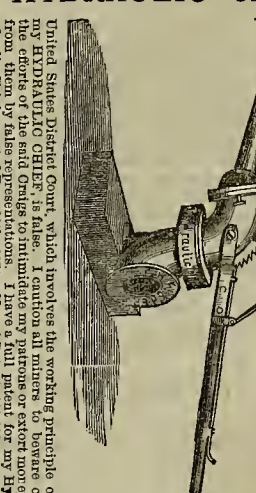
THE ANGEL'S QUARTZ MINE
Shaft is over 400 Feet Deep,
and is kept free from water in its lowest level by the

BLAKE STEAM PUMP
SOLD BY
BERRY & PLACE,
112 California st., San Francisco. 4v22

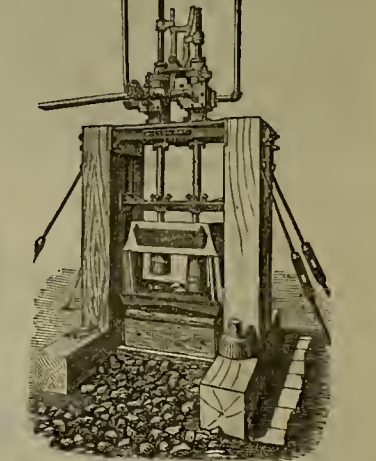
STEAM JET PUMP.
Blakelock & Williams' Patent, for Water, Oils, Acids, Etc.

The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.
We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and repair; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.
Satisfaction guaranteed or the money refunded.
Send for Circular. **PARKER & HUNT,**
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California at., San Francisco; KEPP & BARGON, Stockton. Can be seen at McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

Blake's Patent. THE BEST PUMP for Boilers, Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's
Patent PUMP
It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.
BERRY & PLACE,
Agents, 112 & 114 California St., San Francisco.

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 26v20-3m

HYDRAULIC CHIEF.

Fisher's Hydraulic Jack and Nozzle is the best Hydraulic Machine in use. Machines manufactured to order to throw from one to a dozen tons of water. Hydraulic Mines Take Notice. The notice published by R. H. S. J. Craig, that they have suits pending in the United States District Court which involves the working principle of my HYDRAULIC CHIEF is false. I caution all miners to beware of the efforts of the said Craig to intimidate my patrons or extort money from them by false representations. I have a full patent for my Hydraulic Chief, granted Dec. 20th, 1870. No. of Patent, 110,922.
2v22-1ms **F. H. FISHER, Nevada City.**

THE WILSON Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the
WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.
The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of
FURMAN R. WILSON,
San Francisco.
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.
NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.
F. R. WILSON,
20v19-4f Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!
AGENTS FOR
Dufour & Co's.,
Celebrated Dutch Anchor brand Bolting Cloth; Shot Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and balanced.
MANUFACTURERS OF
French Burr Mill Stones, Portable Mills of all sizes, from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2v22-1yms 41 First st., San Francisco.

Varney's Patent Amalgamator.
These Machines Stand Unrivaled.
For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.
This Amalgamator Operates as Follows.
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.— There it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.
Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.
Mill-men are invited to examine these pans and sellers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.
Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the
San Francisco Plating Works.
655 Mission Street, Between New Montgomery and Third Streets, San Francisco.
E. G. DEYNSTON, Proprietor.
HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold. 20v21-4f

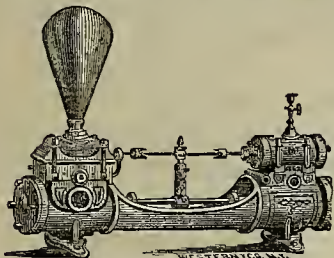
The Stetefeldt Furnace.
For information of any description respecting this process,
APPLY TO
STETEFELDT FURNACE COMPANY.
Duncan's Building, Room 1, California Street,
14v21-1y San Francisco.

USEFUL NOVELTIES.—
Weister & Co., Patent Bro-
kers, No. 17, New Mont-
gomery St., under Grand
Hotel, San Francisco, have
a large and valuable list of
PATENTS for sale on
commission, some of which
will be advertised in next
week's "Press."

DEWEY & CO.
San Francisco.
Scientific Press
U. S. & Foreign
PATENT AGENCY.

OUR U. S. AND FOREIGN PATENT AGENCY presents
many and important advantages as a Home Agency over
all others by reason of long establishment, great expe-
rience, thorough system, and intimate acquaintance
with the subjects of inventions in our own community.
All worthy inventions patented through our Agency will
have the benefit of an illustration or description in the
SCIENTIFIC PRESS. We transact every branch of Patent
business, and obtain Patents in all civilized countries.
The large majority of U. S. and Foreign Patents granted
to inventors on the Pacific Coast have been obtained
through our Agency. We can give the best and most
reliable advice as to the patentability of new inventions.
ADVANCE AND CIRCULARS FREE. Our prices are as low as
any first-class agencies in the Eastern States, while our
advantages for Pacific Coast inventors are far superior.
ENGRAVING ON WOOD, of every kind, for illustrating
machinery, buildings, trade circulars, labels, plain or in
colors, designed and cut in the best style of the art by
experts in our own office. Also, engraving on metals.

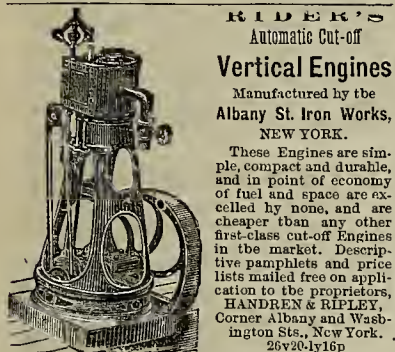
**A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.**



Seldon's Steam Packing for Stuffing Boxes. All kinds
new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

*Pacific
Insurance Company,
No. 122 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.*

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.



O. J. KINO, T. B. KIMBALL, F. D. O'DR.
P. D. CODE & CO.,
MANUFACTURERS OF
**JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES.**
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p]

London Agency.—BATES, HENRY & Co., 4 Old
Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London,
will receive subscriptions and advertisements for the
Press.

DARLING & CO.,

Importers, General Agents and Commission Merchants.

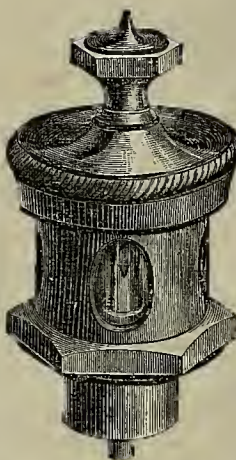
Machinery, Merchandise and Supplies of every description Purchased and Sold on
Commission.

AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS

SELF OILERS.

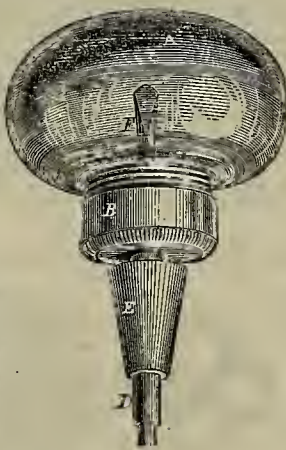


These Oil Cups are too well known
to require any lengthy description;
the following are the main points
of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transpar-
ent Glass Cap, mounted in Brass,
provided with a hollow tube, inside
of which is placed a loose acting
solid or hollow wire, which acts as
a Feeder and Regulator. The wire
rests constantly upon the Journal,
thereby acting with the bearing in
its motion. The wire is so regu-
lated inside the tube as to feed ac-
cording to the demand only. There
is no flow of oil whatever while the
machinery is not in motion.



They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' con-
stant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give
perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position
or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you
desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal
that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed
NATHAN & DREYFUS, New York, Jan. 1st., 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

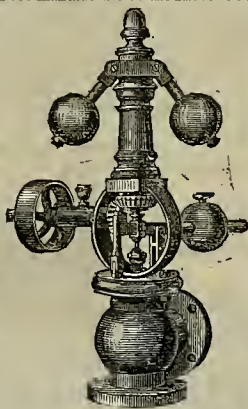
GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several im-
portant improvements have been made and two additional patents obtained
we feel justified in recommending it to all parties using Steam power, and
warranting it to be the most perfect
regulator in the market.

The Gardner Governor is so well
known that we think it unnecessary to
enter into a detailed explanation of the
principles involved, or details in its
construction, merely giving the leading
objects realized by this important in-
vention. The Governor combines with
the greatest simplicity of construc-
tion, accurate regulation of speed, pos-
itive insurance against all accidents
liable to occur from slipping or parting
the Governor or driving belts, and a
convenient arrangement for adjusting
the speed of the Engine while in mo-
tion, without change of pulleys.

The construction of the Governor is
extremely simple, having no springs,
inside joints, swivels or parts liable to
disarrangement, all the several parts
are duplicates of each other in the same
series; the most skillful workmen are
employed, the best material used and
the machinery employed especially
adapted to their manufacture. Thus
we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheer-
fully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either
BLACK or FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special ad-
vantages.

FIRST.—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind.

SECOND.—Its great economy of both tallow and fuel.

THIRD.—It is self-acting, and supplies the lubricating material only while the Engine is in motion.

FOURTH.—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in con-
siderable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and
allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this cup, by its peculiar
action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated
or gassed before passing into the steam chest or Cylinder; the consequence is that instead of falling to the bottom
of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the
cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the
engine become regularly and constantly greased. The result of its action has been proved in a very great number
of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in
fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent of the Lubricating Material, and cost
no more than the common Compression Cups.

The Above Goods are Sold at Factory Rates.

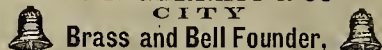
For Price Lists or information address DARLING & Co., 629, Washington Street,

San Francisco, California.

Traveling Agent—R. K. COLCORD.

5v22eow-6m

W. T. GARRATT & CO.
CITY



Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,

Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Glohes, Steam Whistles, HYDRAULIC PIPES AND
NOZZLES for mining purposes, Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes,
Particular attention paid to Distillery Work. Manufac-
turer of "Garratt's Patent Improved Journal Metal."
Best Market Price paid for OLD BELLS, COP-
PER AND BRASS. 6-11

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting,
Hose, and

RAILWAY SUPPLIES.

—ALSO AGENTS FOR—

ORIENTAL POWDER CO., OF BOSTON,

SAN FRANCISCO CORDAGE COMPANY

54 K Street, Sacramento.

7v20-ng

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



No. 17 and 19 Fremont St., near Market.

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and
economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLEN RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.

Agents for H. Royer's Lacing Leathers. 15

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS,



KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

Blank Books made to order from Crew
Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St., San Francisco.
19v22eomly

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 5v22eow-6m

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEB. 11, 1871.

VOLUME XXII.
Number 6.

The Fulton Plow.

From St. Helena, in Napa County, there comes a new one-horse plow, which has a number of points deserving the attention of the farmer; for the inventor claims for it certain advantages, which, if substantiated, will make it a most useful agricultural implement. In the accompanying illustration, A is the beam, attached to the handle in the ordinary way, and E, the

causing the plow to run steadily and hold with ease. Moreover, it applies the power of the horse to the best advantage. By having a center draft, it avoids the friction caused by the land-side being crowded up against the soil, and this aids in pulling and in holding.

These points are certainly important, but the inventor makes one more claim. He says that the plow can be run so closely to whatever is cultivated, that the hoe can be entirely dispensed with. On the large arms of the coast, hoeing is a very expensive item, and if a substitute for it can be found, it will be a most important thing for our farmers.

We are disposed to consider this a very

Palmer's Improved Car Coupling.

Our western regions enjoy a wide reputation for carelessness with regard to the preservation of human life. How well deserved this reputation may be, is a question which we do not propose to argue just now, except to express an opinion that it is exaggerated. But the fact remains that we do have such a reputation in the world at large. It is rather cheerful, then, to find a Pacific Coast invention, one of the merits of which is that it will tend to prevent the loss of life.

This is not the only merit of Palmer's car coupling, but it is one of them, and one which is by no means unimportant. The

between them preventing the link from falling out. This construction is shown partly in the large figure and partly in the small one.

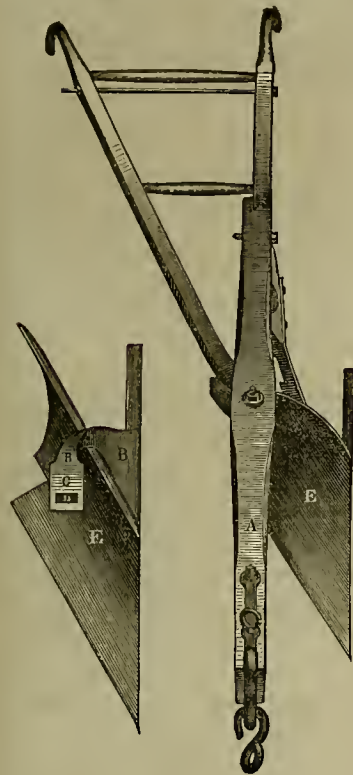
The mechanism for opening the jaws, and uncoupling the cars, consists of a plate, G, which has two slots in it, inclined from the bottom upwards some distance and then vertical, through which are passed the jaws. This plate is moved up or down by means of the levers, F and E. By moving the handle E to the side (away from the center) the plate, G, is raised, the jaws opened and the link allowed to fall out. By moving it in the opposite direction, the jaws are closed, and when the plate, G, is pressed down as far as it will go, the jaws are held firmly closed, the upper part of the slots being vertical, as before remarked.

To automatically uncouple the cars, should one run off the track, there is a spring, H, attached below the hump in such a way that, if left free to act, it will press the plate, G, up and thus open the jaws and release the link. Ordinarily this is held away from the plate by a stop, I, which extends vertically nearly to the ground. Should the car get off the track, as the frame then is dropped a certain distance, equal to the height of the top of the rail, the stop strikes the earth and, in consequence of the forward motion, is thrown to the rear, thus releasing the spring, H, which immediately raises the plate, G, and uncouples the cars.

The operation is simply this: To couple, the lever, E, is moved to one side, opening the jaws and allowing the link, D, to enter. The shape of the hollow in the jaws guides the link into place. By reversing the lever, the jaws are closed, and by moving it far enough, so that the jaws enter the vertical portion of the slots, the cars cannot uncouple. To uncouple, the lever, E, is moved again to the side, thus opening the jaws and releasing the link.

This contrivance enables the cars to be connected or disconnected with great ease by a person standing on the platform, and obviates entirely any necessity of having a man go between the cars, where accidents so often occur. The mechanism is intended to be substantially built, durable, not liable to get out of order in ordinary cases, and is easy managed. The contrivance for uncoupling, should the cars get off the track, is also very ingenious and may save much loss of life. A patent has been granted for the device, through the SCIENTIFIC PRESS patent agency, to Mr. Jay R. Palmer, of Mariposa, Cal.; who may be addressed for further particulars.

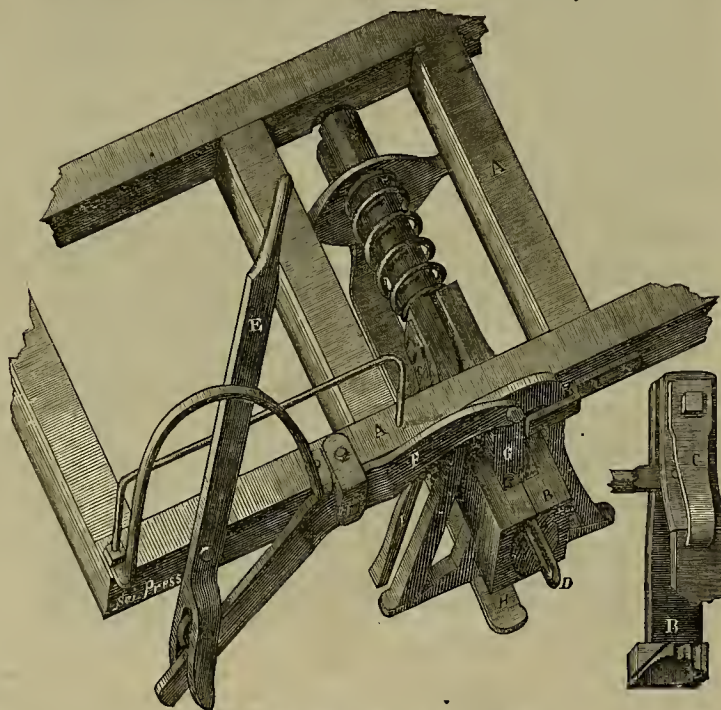
FUEL SAVING.—Mr. Bryant, of Davis street, recently called our attention to a simple and effective device for economizing in burning coal, which he has in his office. It consisted merely in lining the front and bottom of the grate with a wire screen, so that the small particles of coal, usually wasted, are consumed. No. 16 wire, with $\frac{1}{2}$ inch meshes, was used, 50 cents worth of which is ample for two small grates.



THE FULTON PLOW.

plowshare, connected with the beam in a peculiar manner. For the standard, B is bent, inclined or attached to the plow in such a way that its upper end will be to the right, or away from the land-side. This upper end is provided with a plate, C, in which is a slot, D, through which passes the bolt securing the standard to the beam. A great variety of forms may be given to the standard, B, and the position of C may be varied according to the requirements of the case. Moreover, the slot, D, may have any length required for the purpose of adjusting and setting the beam at any desired angle.

The peculiar bend or curvature of the standard, B, and its position at or near the perpendicular center of the mold-board, brings the beam, whiffle-tree and handles some distance, say eight inches, to the right of the new furrow. This enables one to plow close up to rows of vines, plants, trees, etc., without interference on the part of horse or plow; allows the horse to walk in the furrow already made, where he naturally tries to walk, and where he is sure to walk in a straight line; and at the same time keeps the beam and line of draft true,



PALMER'S IMPROVED CAR COUPLING.

meritorious invention. Several agricultural societies have decided in its favor, it having received the first premium at the California State Fair for 1870, and at the Santa Clara Valley and Sonoma County Fairs. It is certainly worth enquiring into, and we refer our readers to the patentee, David Fulton, St. Helena, Napa Co., Cal., or to the manufacturer, A. W. Norton, Napa City, Cal.

HEAVY FARMING.—Sam. Brannan, having just finished seeding some five hundred acres of land in the vicinity of Calistoga, has transferred his working forces to his Yuba river ranch, consisting of twenty-five laborers, forty horses and three wagon-loads of plows, harrows, etc. He intends planting a large area of land along the Yuba this Spring.

The State Agricultural Society has offered a premium of \$25 for the best one-quarter acre of sugar beets.

device is illustrated below, and consists in so constructing the bumpers that the link which is attached to one will enter the other, when the cars are brought together, and thus connect them, without the need of having a man stand between them. It also consists in the use of a series of levers, which operate a plate having two inclined slots, by means of which the jaws of the bumper are opened and the link released without the need of further attention.

In the engraving, A is the car frame, mounted on trucks in the ordinary manner. The bumpers consist of two movable jaws, B, bolted on a rear beam or bar, and held together by springs, C. To afford the requisite yield, when the humpers come together, there is a spiral spring around the beam between the rear of the jaws and a cross-head, as shown in the cut. The front of the jaws are hollowed out in such a way that the link, D, is guided into them; and to hold the link in place, when inserted in the jaws, there are two grooves, corresponding to the sides of the link, the tongue

MECHANICAL PROGRESS.

LOCOMOTIVE BOILER IMPROVEMENT.—The *American Artisan* describes a novel system of boiler construction as follows: "In the proposed system, the ordinary horizontal tubular boiler is divided transversely into three compartments. In other words, it is made to constitute three boilers, having but one furnace for them all. The forward compartment is filled full by the feed-pump; the feed-water entering at its extreme front, and, circulating between suitably arranged diaphragms, at last enters the central compartment. This latter is furnished with a steam dome. The rearmost compartment in the immediate neighborhood of the fire-box is also kept full of water, and is so maintained by circulating pumps, which draw water from the central to the rear compartment, in which latter the pressure is considerably more than in the other. The rearmost communicates, further, with the central compartment by a valve at its upper part. The operation is essentially as follows:—the water in the foremost compartment is heated by that portion of the boiler-tubes through which the gases pass immediately previous to their exit to the smoke-stack, and the temperature of which is comparatively low. The heat from the gases at this part being thus utilized to the utmost, the water passes to the central compartments, devoted either wholly or only partially to making steam. From this the circulating pumps force it to the rearmost compartment, where it is heated, as just indicated, to a temperature above that in the central division of the boiler, ebullition being prevented by the complete filling of the compartment with the water. Passing back through the suitably arranged valve into the central compartment, the lower temperature of the latter causes a part of the water to flash into steam, which from the dome goes to the engine, while the water, reduced in temperature, falls, and is in due time again pumped into the rearmost compartment, heated, and caused to return, in the manner just explained, to the central or steam-generating compartment."

CHROME STEEL.—The editor of the *Iron Age* has visited the works of the "Chrome Steel Co." at Williamsburg, Pa., and was greatly pleased with everything connected with the establishment. His description we have not space for; but we give part of the concluding portion which refers to the product: "The company hold that their steel is superior to any thing manufactured in this country or in Europe, and back up their assertion by their willingness to prove it under any forfeiture. They say that it has properties and advantages entirely its own, and is especially adapted for tools of all kinds. It can be worked at a white heat—and can not be injured by over heating." It can be welded to iron or to itself, leaving no trace of the weld; it can be worked and reworked without injury; and, they claim that, when made into a tool, it will do at least 50 per cent. more work than any steel, not excepting the highest priced, and be perfectly uniform in each grade, and they so warrant it, with this qualification, that it must be treated according to directions, which are mainly that it should be dipped at a low red heat, as seen in the shade; that all tools forged from a large body to a small edge should be allowed to cool off after forging, and be reheated for tempering, and they claim that the only way in which it can be spoiled is by dipping it in water or hardening mixtures when too hot. Several bars were heated to almost a white heat at our request, then worked, reheated and reworked, tempered, and a specimen cut off, of most beautiful fine grain so hard as to cut glass. Another of the bars thus put through the white heat was split, allowed to cool, then heated again, hammered together without flux, and a chisel forged out of it, the edge being on the weld, which was tempered at very low heat, ground, and then tried on an ingot of steel, cutting out chips to half an inch deep, without showing any mark of bluntness or fracture; we took that cold chisel home as a sample. It shows the mark of having been sliced half way up the handle. As a test of toughness we were shown a $\frac{1}{2}$ inch square bar twisted cold until it looked like a cable, also a turning lathe shaving forty to fifty feet long. Dynamic tests of this steel have been made by David Kirkaldy, in London, also at West Point foundry, which latter showed as the highest strength of 12 specimens, 198,910 lbs.; lowest strength of 12 specimens, 163,760 lbs.; average of all the specimens, 179,980 lbs.;

or say, 180,000 lbs. per square inch, which is one-third more than Percy gives as the highest tensile strength attained in steel. It is further stated that run into wire it will tie into knots, and stand 400 pounds more in No. 16 than the wire used by hoop skirt makers; and Mr. Wood says that he can make a tool from it to drill through Stubbs' hardest file."

MACHINE FOR PIECING BOILER FLUES.—The *Railroad Gazette* describes the shops of the Chicago and Alton R. R., at Bloomington, Ill. Among other things noted is a machine for piecing flues. We quote:—"An ordinary locomotive tube has so little metal in it that it will hold a welding heat but a short time. It is therefore difficult for a blacksmith to strike fast enough to effect a perfect weld before the metal becomes cooled. Mr. Hughes, the foreman, having experienced this difficulty designed a trip hammer to be worked by hand. The hammer head and anvil each have a half-round die which conforms to the shape of the tube. The hammer helve is operated by a ratchet wheel with six teeth, and the hammer is brought down quickly by a steel spring. The shaft of the ratchet wheel and crank has a heavy fly-wheel to overcome the intermittent motion of the ratchet. With this machine a man can strike two or three times as fast, and with much greater precision than is possible by hand. The blacksmith's helper turns the crank, while the former handles the tube to be welded. The two have pieced out 150 2-in. tubes in ten hours, and have taken a whole set of flues out, pieced them up, and returned them to the engine in the same day. After they are welded up they are all tested by a hydraulic pump." Out of a set of 136 two only were found to be imperfect."

MORE OF PETROLEUM FUEL.—The *Chicago Tribune* of Jan. 21st notes the experience of Gen. Blunt at his lime kiln, in the use of petroleum as a fuel. The apparatus used consists of a cylinder, like a small locomotive boiler set on end, with a smaller cylinder within it, the intervening space being filled with petroleum. The smaller cylinder is filled with 600 small copper tubes, and through these the superheated steam passes, producing vapor from the oil that fills the interstices between the tubes. This vaporized oil rises through a layer of prepared sponge, and just at the point of exit is mixed with superheated steam in any required proportion, thus producing hydrocarbon gas. This gas passes through iron tubes to the point where the fuel is needed and is there burned. * * Gen. Blunt stated that his conclusions, based on results obtained, were that with the expenditure of \$25 per day for wood, he could burn 125 barrels of lime. The same sum expended for oil would, with the aid of this machine, turn out from 250 to 300 barrels per day, and one machine would be amply sufficient to supply fuel for three kilns. The saving in time was so great that he could produce the same effect with oil in three hours, starting with a cold kiln, that he could in twelve hours with wood.

STEAM ORE STAMP.—The *Engineer* of January 6th describes a modification of the steam hammer, lately constructed at Bolton, Eng., for the crushing of ores. The hoiler not being properly adapted to the machine, it was worked, on the trial, with half steam only, and gave an average of only 100 blows per minute, instead of 150, of which it is capable under favorable circumstances. Notwithstanding this and other drawbacks, two tons of ore were run through in thirty-six minutes.

CABLE SCREW WIRE.—The following is from the *Iron Age* of Jan. 12th: The latest and one of the most ingenious inventions for fastening the soles of hoots and shoes is that known as cable screw wire, which is cut off and driven into the sole by means of a machine bearing the same name. The wire is twisted into the form of a screw, instead of cutting the metal as in the ordinary process. The machine is capable of hot-tomming five hundred pairs of shoes daily.

WOOD ENGRAVING.—Thirty years ago there were not twenty professional wood-engravers in the United States; there are now four hundred. There are thirty-five engravers in steady employ at Harper's, and sixty-eight at Leslie's. In 1869 eighteen thousand wood-engravings were prepared for Mr. Leslie for which \$180,000 were paid.

SCIENTIFIC PROGRESS.

THE SOLAR PYROMETER.—London *Engineering* for Dec. 30, has a description, by Capt. John Ericsson, of his instrument for measuring the temperature of the sun. We quote briefly:—"At first sight, it will appear futile to undertake to measure temperature at a distance of 90,000,000 miles; but in view of the fact that the sun has been weighed by an instrument consisting principally of four leaden balls less than 10 in. in diameter, the attempt cannot justly be deemed absurd. The reader will remember that in the celebrated Cavendish experiments, afterwards repeated by Baily and others, the weight of the earth—on which the weight of the sun is based—was ascertained by measuring the attractive force of two spheres of lead weighing 174 lb. The delicate nature of the experiment may be inferred from the fact that the ascertained attractive force was found to be only 1-4300 of a grain. The illustrated device by means of which the temperature of the sun may be measured, involves no such nicety. Before entering on a description of the solar pyrometer, it will be necessary to call to mind the previous article in which it was demonstrated that the law relating to the radiant heat of spheres, is also applicable to concave spherical surfaces if the substances exposed to their radiant heat be placed in the center of curvature. The article referred to, also asserted that the temperature produced by the radiant heat transmitted by concave radiators of equal temperatures, at equal distances, is directly as their areas. ***The principle of my solar pyrometer is that of ascertaining the intensity of the heat of the sun by comparing the temperature produced by the radiant heat of a concave spherical radiator of 10 in. diameter, at a distance of 18 in. from its face, with the temperature produced by the radiant heat of the sun a sphere of 852-584 miles in diameter—at a distance of 91-430,000 miles from its centre. The radiant heat in both cases is transmitted through ether; in the former to the surface of the bulb of a thermometer; in the latter to the boundary of the earth's atmosphere. The law which governs the propagation of radiant heat through ether, is as absolute as the law of gravitation, whatever be the distance; hence the pyrometer under consideration, in which the radiant heat is propagated a distance of 18 in. through ether, is as competent to determine the temperature of the sun, as the Cavendish leaden spheres acting at a distance of 8.85 in. to determine his weight. **In the solar pyrometer we only require a correct indication of the temperature of the radiating concave spherical surface, and of the temperature transmitted to its focus; together with an accurate measurement of the distance of that focus, and of the area of the radiating surface. These points being determined with exactness, we may enter upon and carry out our computation without introducing a single correction."

ITACOLUITE.—Prof. Wetherill, whose idea that the flexibility of this curious rock is due to minute ball and socket joints throughout the mass has been opposed by Prof. Edwards, publishes another note upon the subject, a part of which we quote from the *Journal of the Franklin Institute* for January: "In order to see the joints, a thin section, supported at one end or at both ends, may be moved while under the microscope with a needle point; by changing the position of the section, a part may be reached at which the play of the joints may be perceived. They can also be seen by dissecting a flexible piece of the mineral, using either a fragment or a surface rubbed flat. The surface to be examined is inverted, tapped, and, as far as practicable, brushed free from loose grains. It is then examined under the microscope with a power of 40 to 60 diameters. The attention of the observer is first attracted by the irregular pits or depressions formed by grains of sand. By very delicate touches with a fine curved needle point, the surface may be investigated; loose grains of sand are seen and removed. Touching other grains and congeries of them delicately with the needle, proves that some have motion in a cavity formed of grains of sand and cemented together. These are dissected out, and other movable groups are found. Some have less motion than others, and some are immovable. By patient investigation of the mineral in this way, the observer will rise satisfied that it is made up of joints of the character which I have described."

ERICSSON ON SOLAR TEMPERATURE.—The following is from an article by Capt. Ericsson in *Engineering*: "Our space only admits of an allusion to the speculations and calculations which have been published of late by certain savans relative to solar temperature. Among these Zöllner's calculations may be mentioned as the most singular, being based on the height of the observed solar protuberances. Practical men who have witnessed the explosions in closed reverberatory furnaces, which take place when a dense mass of incandescent coal gas, resting on the fused metal, is suddenly ignited by the admission of oxygen, will probably attribute the solar protuberances to a very different cause from that imagined by Professor Zöllner. They will assert that the observed explosions in the solar atmosphere are quite possible without sending up gas from a depth of 139 geographical miles through the "ausströmungsöffnung," supposed by the German physicist. The reader may have noticed that some of the savans alluded to have attempted to set limits to solar temperature on chemical and dynamic grounds, insisting that the temperature of the sun is under 60,000° Fahr. All such speculations are futile, in view of the fact which we have established, that a heated sphere subtending an angle of only 32', at a distance of 90,000,000 miles, cannot, unless raised to a temperature of several millions of degrees, transmit radiant heat sufficiently intense to cause an elevation of temperature 84° Fahr. at the stated distance."

ONE SUCCESSFUL ECLIPSE PARTY.—The *Boston Advertiser* gives an extract from a private letter dated Catania, Sicily, Dec. 22d, and written by a member of the U. S. Coast Survey. "All the success seems to have been reserved for our party. Just before the instant of total obscuration there was a break in the clouds, which was the more remarkable because it was raining and hailing at the time. This break did not extend a thousand feet from the place where we observed. But it gave us a superb view of the corona and the whole totality, and enabled us to establish very important conclusions. It must be said, however, that there was just enough haze to deprive us of what I am disposed to call the false corona, and which I consider to be a part of our own atmosphere. But the true solar corona is clearly proved to be a solar atmosphere extending about eight thousand miles above the ordinary visible surface of the sun. There were three different sources of proof of this conclusion. The work is done successfully."

IMITATION VOLCANOES.—At a late meeting of the Vienna Geological Institute, M. von Hochstetter exhibited miniature volcanoes formed by sulphur in a soda manufactory. Sulphur melted in water under a steam-pressure of two to three atmospheres combines with a certain quantity of water. Larger masses of this melted sulphur (one to two quintals) were poured in conveniently deep wooden vessels. In consequence of the refrigeration, a crust was soon formed on the surface. In this crust a hole was kept open, through which, as the congelation of the sulphur proceeded, periodical eruptions of melted sulphur, together with exhalations and explosions of steam, were observed. After the lapse of an hour and a half, a miniature volcanic cone was formed, with all the characters of a volcano formed by successive lava streams. Observations which can be made during this experiment are sufficient to explain and to confirm many facts observed in real volcanoes. If the artificial eruption is interrupted by a second hole made in the crust, the cone becomes hollow, and if this hollow cone is crushed and the eruption again caused by closing the second hole, a model is formed of a younger volcanic cone which is surrounded by an outer barrier, like Vesuvius or the Peak of Tenerife. If the process is conducted to the end without interruption, the result is a massive cone with a closed crater, which resembles perfectly the homogeneous dome-volcanoes, as Seehach calls them. These domes, or massive cones, must therefore be considered as the inner massive nuclei of perfectly extinct volcanoes, the lava, ashes, and tufts of which have been removed by denudation.

CORRESPONDENCE.

Notes of Travel in Stanislaus County.

(Written for the Press.)
Modesto.

Modesto, in this county, is situated on the San Joaquin and Visalia R. R., 20 miles from Lathrop, the junction of the C. P. R. R., and about 30 miles from Stockton. The first building in this thriving little village was erected no longer ago than last November (1870), while now there are over 150 buildings, being an average of over one per day since the first one was erected. It contains one hotel, presided over by Jas. Cole Esq., a clever gentleman, by the by; also 4 boarding houses, 1 restaurant, 6 saloons, 9 stores, 4 blacksmith shops, 2 harness shops, 2 shoemakers, 2 meat markets, 1 stove and tin shop, 3 livery stables, and other things to correspond. James McHenry Esq., was the pioneer of this section. He first moved here in November last, but has been a resident of the county since the year 1863, and has been one of its supervisors. When Mr. McH. first moved to this county, the whole annual product of the county could have been shipped to your city upon a single steamer; now it ranks first in the production of cereals. This gentleman has shipped from here by railroad, since November last, over 2,000 head of hogs (alive), besides a large number of sheep. He owns personally about 800 acres of beautiful land, situated some 3 miles west from here, all of which will be in grain this season.

This section, extending from Lathrop and below in San Joaquin Co., to this point, and for three miles above here into Merced Co., is one complete grain field, for say 50 miles! Little or no fencing has been done in this county; a local law, forbidding loose animals running at large, protects the grain producers.

Wm. M. Hughes Esq., of the firm of Hughes & Keys, commission merchants of this place, is the possessor of some 2,550 acres of fine land, situated some 7 miles south-east from here on the line of the S. J. & V. R. R., all of which is in grain at this writing. Eight miles east from that point he owns and cultivates 1,800 acres more. Six 8-mule teams are now engaged in running gang-plows, (of the Matteson & Williamson make, of Stockton) upon this tract. It is also stocked with 1,600 head of fine sheep. The number of pounds of grain shipped from this point (Modesto), since Nov. 1st, 1869, by J. Mitchell, C. H. Hoffman, and Hughes & Keys, is 2,580,345. If there are good crops this year, ten times that amount will be shipped. W. O'Brien Esq., has shipped 220,000 lbs. of live mutton in the same length of time. Ex. Gov. Stanford's private secretary has just passed south, said to be on subsidy questions from Merced, Fresno and Tulare Co's.

Stages—New kind of Telegraph.

Stages, Z. & H. Fisher, of Stockton, proprietors, at present leave this point for Snelling, Plainsburg, Hornitos, Bear Valley and Mariposa, also for Visalia, three times per week, but will soon leave daily. This is a distributing post office, and the labors upon its Post Master, Mr. McEwen, are extensive, requiring a deputy to assist in order to get the mails off in any reasonable season. His salary, which is but \$280 per annum, should be \$2,000.

They have a new method of telegraphing in this section. It consists of a *lassie* and *laddie* who are supposed to be in love, but residing some 5 miles apart. Lassie milks a cow that feeds in the vicinity of laddie's house. Communication is had by enclosing a note in the old cow's tail, which is answered daily. The balance you can guess.

C. H. Sisson & Co's. U. S. Mail stages leave Wells, Fargo & Co's. office daily, (Sunday's excepted), from Stockton for Knight's Ferry, Chinese Camp, Montezuma, Jamestown, Sonora, Shaw's Flat and Columbia; also, stages for Mokelumne Hill, San Andreas, Angels, Vallecito, and Murphy's; also, stages for Telegraph and Copperopolis, Monday, Wednesday and Fridays, connecting at Murphy's with stages for the Big Tree Grove, daily, and at Chinese Camp with stages for the Yosemite Valley, via Conterville or by the New Road through Big Oak Flat, and Harding's Mills. On or about the 1st of March next, the stages will connect with the Stockton & Copperopolis Railroad, at Petersburg, 15 miles from Stockton for the above mentioned places. From Merced County in my next.

L. P. MO.

Bound East—At Chicago.

(Written for the Press.)
Western Enterprise.

Not many years ago, a company commenced a manufacturing business here (Chicago) in a small room, 14x20 feet. By careful attention to business and to the workmanship of the articles they turned out, they gradually built up a large trade, and now, under the name of the North Western Manufacturing Co., they occupy a three-story building, with 154-foot front, and employ constantly 400 hands! I passed through their very extensive works, where everything is conducted in a most systematic manner, and saw an immense amount of work going on. Steam engines, steam pumps, cranes, hoisting machines, steam heating apparatus, malleable iron castings, etc. They have made a specialty of the manufacture of wrought-iron steam and gas pipe for the last five years; and, although they have had a strong eastern competition

a cunning hand to execute.

The Pullman Car Company has become one of the leading business associations of the country; for at the east, no competing railroad line can expect to secure a large passenger traffic without having these most excellent cars, so popular are they with the traveling public. The main office and commissary department of the company are in Chicago; the manufactories are scattered throughout the United States.

The Chicago Office—California Woods.

The offices here are fitted up splendidly, handsomer ones perhaps, do not exist in the United States. Black walnut woodwork, frescoed and panelled ceilings and walls, rich carpets, magnificent furniture,—everything in the finest style and most exquisite taste. One of the rooms is a real curiosity, for it is papered with a material printed from the fibres of different woods, by some process, and so perfectly that it is almost impossible to think that the walls are not veneered with the real woods. The place is well worth a long trip to see.

The affairs of the company are conducted in a most thoroughly systematic order. The master spirit, whose influence is visi-



INTERIOR OF PULLMAN HOTEL DINING CAR.

to contend against; they have succeeded in building up a very large business in this branch of industry. They have been running their mill night and day during the past season, are using daily over ten tons of iron, and the superior quality of the pipe produced therefrom creates a demand for it not only in the north, south and west, but as far east as Ohio and Pennsylvania, a fact that is highly creditable to the skill and energy of this firm.

The Pullman Palace Car Company.

In 1831, a Professor Low was dismissed by the Faculty, from the chair he held in a Kentucky college because he was insane. His insanity was proved, in the opinion of his associates, by the fact that he had written and published a pamphlet advocating a national railway across the continent from one shore to the other! In May, 1869, only 38 years later, Professor Low might have been justified in dismissing the other professors. In September, 1869, the first railroad car passed direct from New York to San Francisco. This was a Pullman Palace car, a wonderful and magnificent innovation on our roads. Since then, hotel cars have made the trip, each more comfortable than the preceding; and improvements have been added until one wonders what is to come next. Certainly Mr. George M. Pullman must have a quick brain to devise, and

ble everywhere, is Mr. George M. Pullman, from whom the company gets its name. Mr. Pullman, by the way, awards to California the prize for superiority in wood suitable for car-building. He has in his office a collection of sample woods from the Pacific Coast, the names of which I send you. Those in italics are California Coast woods:

Oregon Ash (very well liked), *Abazo Vena, Primavera, Ebony, Aquilado, Coffee Wood, Alaska Cedar, Male Linola, Female Linola, Cabo de Hacho, Cal. Beach, Redwood, Colorado Lona, Tecomate, Mountain Mahogany, Oregon Cedar, Blood Wood, Lanco Wood, Lower Coast Ebony, Tiger Wood, Chilillo, Campeche, Lena Turte, Temisquito.*

Connected with the offices is the manufactory of hedding, mattresses, etc., for the cars. Spring mattresses, among other things, are furnished here. The supply rooms look like huge wholesale grocery, glass and hardware establishments. Everything is of the best, the handsomest and the neatest.

The Cars.

The company is ready to furnish excursion parties with cars to San Francisco or elsewhere. For a regular sleeping car with 28 berths, or a drawing room car which can be converted at night into a sleeping car with 26 berths, with conductor and porter, a charge is made of \$75 daily. For a hotel

car with kitchen fully equipped and with conductor, cook and two waiters, the charge is \$85 daily.

Everything in the cars is most elegant and comfortable. Between New York and Chicago, sleeping cars are run which are *lighted with gas*, the arrangements for this being perfect. I came on over the Union Pacific to Omaha and on the Burlington route to Chicago in the Pullman cars, and I assure you that it was grand.

In the dining cars more could not be wished. The choicest of food on tables covered with spotless linen and garnished with the finest of silver services, the best of waiters and, if you can afford it, really good wines, incline one to do full justice to the appetite acquired from the bracing air of mountain or plain. I could hardly realize that I was the same fellow who roughed it across the plains in an ox-cart, years ago.

But I cannot dilate longer on this subject and must conclude with my thanks to the officers of the company for the many kind attentions shown me.

Filing Saws.

(Written for the Press.)

EDITOR PRESS:—In an old number of the SCIENTIFIC PRESS appeared an item headed "How to File a Saw." Now, there is one little difficulty that I have always encountered, that "How to File a Saw" did not enlighten me upon,—and that is this: It frequently happens that the teeth upon one side not only get larger (a thing easily remedied), but smaller in every way. In endeavoring to file the back side of the large tooth in a cross-cut saw, the file is liable to over-ride, so as to damage the next tooth forward. To prevent this, for a long time I was accustomed to hold my thumb-nail close to the file, so that it would stop it whenever the tendency to over-ride carried the tool over the top of the tooth; but in so doing, although the forward tooth was protected, it was at the expense of an occasional sore thumb; until it occurred to me to substitute a soft piece of iron that would receive the file, if it slipped over, and so protect the small tooth from damage and make the tool do its work upon the large one. The foregoing hints may be of use to those who have encountered the difficulty mentioned in saw-filing. F. M. S.

San Diego South, Jan. 22, 1871.

THE BLUE LAKE MONSTER.—"Ink Stand" writes to the *Healdsburg Flag* that he has actually seen this rather mythological inhabitant of the Blue Lakes of Lake county, and is going to make it a point to ascertain just what it is. We hope he will succeed. He says: I caught a glimpse of him swimming near the opposite shore, a distance of some 400 yards from me. I stopped the team to get a good look at him. I should think he would measure at least twenty feet in length and five or six feet around the body. The Indians hereabouts have the superstition that a sight of this monster devil fish, as they call him, is certain death to them. They will not fish in the lake he inhabits, the upper Blue Lake. I refused to believe this big fish story until convinced by the evidence of my own eyes. I find my incredulity gone but am unable to say what this huge creaturo is.

A COLORADO AMALGAMATOR.—The Colorado Herald thus describes an amalgamator, designed for taking the flow from stamp mills and by forcing it through quicksilver ensure the amalgamation of all free particles of fine gold. The bed of the machine has two half cylinders somewhat like Hungarian bowls. In these revolve very slowly two fluted wooden cylinders. The arms made by these flutings force the pulp through the charge of quicksilver, which is placed in the bowls. No quicksilver is used in the batteries. It is claimed that in this way all of the pulp must pass through the quicksilver and that perfect amalgamation thereby ensues. We hope some one will give it a trial. It is called the Euroka amalgamator.

NEVADA COAL.—In a few weeks, at most, says the *Elko Independent*, of Jan. 25th, will demonstrate the fact whether Elko county boasts a first-class coal mine or not. The probabilities are all on one side, and the indications are that the bed is not only extensive, but of a very superior quality. This will give us another source of wealth as well as filling the pockets of the fortunate owners.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, January 28th: A vein struck in the south drift of the Globe this week yields a fair quantity of good ore. Steam is on at the Globe Mill and it is expected that work will begin in ten or twelve days. The ore dump of their C & D mine is growing daily. The finest specimens of ore ever found in Alpine, have been lately taken from the Schenectady mine and sent to New York. Native silver could be plainly seen.

AMADOR COUNTY.

SUTTER CANAL.—The *Ledger* of February 4th says this is finished to near the junction with the Butte Canal, and will in a few days afford a considerable supply of water. A large extent of mining ground hitherto untouched, will now be worked, and the fine foot-hill lands be cultivated with profit. The next thing we want is a narrow gauge railroad along the divide to the inexhaustible timber forests above us.

VOLCANO.—Just now, mining is very dull, owing to the scarcity of water—there being none to be had on the north side of the town where there are a number of rich claims. On the "Flat" a number of claims are paying.

RICH.—Marklee and Nichols of the Alturas (Marklee) mine, have made another rich strike in a new location, two miles north of Volcano. The shaft is only down thirty feet with a vein of ore from two to three feet in width, and so rich is the rock that they are sacking it as fast as it comes out of the ground; scarcely a piece can be found that does not show free gold.

BUTTE COUNTY.

CHEROKEE.—Chico *Enterprise*, Feb. 4th: The new Ditch Co. have entirely succeeded. Employment is now given to hundreds where a short time since a few only found work. The Cherokee Co. will next summer add another ditch and swarm the Flat and surrounding hills.

CALAVERAS COUNTY.

GRAVEL MINING.—Paul & Co., below the Junction, are working twenty hands and meeting with fair success. Their tunnel is over half a mile in length, a good portion through solid bedrock. At the What Cheer everything is progressing favorably. The incline is pushed as rapidly as possible, and the channel will be reached within five months at farthest. Shaw's hydraulic is not in operation. He will "go after" Stockton ridge again, shortly. Brackett & Co's cement mill is in full blast, and the batteries clean up well. The Frenchmen who purchased the old Paul claim in Chibi Gulch, have been working the mine successfully ever since. Champion, Boughton & Co., in Corral Flat, are sinking a new shaft, having worked out all the pay gravel in the vicinity of their old one. Megaw & Co., on the western side of Stockton Hill, have run about a mile of tunnel, sunk shafts and "drifted" in every direction in search of the "lead." At Sport Hill the hydraulic and tunnel claims are all being worked again since the rains.

PALOMO.—The thirty-six stamps are crushing eighty tons of rock every twenty-four hours. At the depth of four hundred feet the sinking has been discontinued and all the hands, some forty, are "stopping out." When we state that \$2 per ton will cover the expense of mining and milling, and that the rock averages \$10, any one can figure whether the mine is paying. Alexander & Co., are pushing ahead with favorable results. Lower Rich Gulch is the liveliest precinct in the county.

THE "BIG MINE."—We understand that the quartz lode near Railroad Flat, conditionally sold to parties in San Francisco, by the Lewis Bros., is turning out splendidly. The lead is widening and the rock is very rich.

INYO COUNTY.

ECLIPSE.—*Independent*, Jan. 28th:—Surveys have been made from the mill to a point on the river nine miles above, with a view of bringing water in to propel the machinery. Some 7 tons of extremely rich ore from the new strike are ready for shipment to England. The assays average \$1,898 per ton, with more on the dump, and plenty in sight. It is probable that the company will erect smelting works.

LEAD.—White and Williams, in the Buena Vista tunnel, now in 400 feet, struck a large body of solid galena last week.

BELMONT MINE.—Last week the lower tunnel was in 600 feet. The rock was soft enough to make good headway. In the same tunnel, 370 feet from the mouth, the

miners struck a ledge 2 feet in thickness, and will start a drift on it this week.

ITEMS.—The tunnel on the Wittekind is in 170 feet, and the rock is softer. The Osceola Co. are in 200 feet, but have not yet reached the ledge. Belshaw's furnace is running out stacks of silver-lead bars. The Crowning Glory is taking out good ore. White & Co., contractors on the Kearsarge tunnel, have nearly completed the work, and the ditch and water wheel are progressing favorably. Two teams with nearly 48,000 pounds of ore from the mine at Hot Springs for the Swansea furnace, passed through town on Tuesday.

The Lone Pine correspondent of the same says that Cerro Gordo produces from one furnace alone, more than 1,200,000 pounds of lead hulsion yearly, and could do much better if there were means of shipping it.

LASSEN COUNTY.

BIG VALLEY.—The *Yreka Journal* of Feb. 1st says that suit has been brought against Haskins, Ehlers & Co., of Providence Hill, for the quartz ledge underlying their claim, and \$100,000 damages, by parties who discovered the ledge outside of their lines; H. & Co., having first entered it as a placer claim.

The *Union* of same date says that these parties are from Virginia City, Nev., and that they do not deny the right of H. & Co., to work off the decomposed quartz down to the solid ledge. The *Union* learns also that four distinct and well defined ledges have been discovered on the hill. A large number of persons are engaged prospecting in the vicinity.

NEVADA COUNTY.

RICH.—*Transcript*, Feb. 1st: Dr. Esmond has been for a year past running a tunnel under the bed of the South Yuba river, at Washington. He has spent several thousand dollars, and of late has been considerably downcast. Last Friday a boulder was struck which filled the entire tunnel, and nearly the whole day was consumed in blasting through it. When the last shot had been fired, and the fragments of the boulder removed, nuggets of gold, varying in weight from a bit to an ounce and a half were plainly to be seen on the bed rock, while a fine body of gravel showed itself, which has since been found to be thirty feet wide and six feet high. Forty-six ounces or nearly four pounds of coarse gold were picked up in about a half hour. The Dr. feels better.

RISEING STAR MINE.—*Gazette*, Feb. 2d: The old Sogg's mill is crushing 200 tons of rock from the Rising Star, formerly known as the Wyoming. Rock from this ledge was crushed as early as 1853. It has yielded \$68 a ton, and never less than \$23. The owners are A. H. Hagadorn, John Peard, H. McCauley, and J. Keehan. Some of the specimens taken out lately will rank among the richest we have seen in Nevada County.

DEER CREEK.—Between Sogg's mill and Newtown, four miles, there are twelve companies at work. These own nearly the entire bed of Deer creek for 20,000 feet. The Big Derrick Company is owned and worked by Chinamen; all the others by white men.

MILL AND MINE LEASED.—Same of 3d: We are informed that the Nevada Quartz Mining property, (Sogg's,) has been leased for three years to parties in San Francisco. The ledge is from five to fifteen feet in thickness, and has never been worked below the water level.

HYDRAULIC.—E. Williams is running two sets of hydraulic claims at You Bet, and Niece & West have commenced piping. Mr. Williams has 650 inches of water in his ditch.

THE MINING SITUATION.—*Grass Valley Union*, Feb. 3d: The Eureka has continued its steady yield, amounting to over \$2,000 per day from the mill, with extensive savings of rich sulphurets. The works underground are in splendid order, and there is ore in sight for three or four years. Perrin's mine will soon be well opened for two or three years' work. South Star rock is looking well. North Star pays over expenses. The English Co. which now owns the Grass V. Consolidated (O'Connor), will immediately open up the mine in scientific style. Landis & Black, of Goshen Hill, will get through with their long tunnel within a week. Goshen Hill is filled from top to bottom with gravel which will pay by hydraulic. On the bed rock the deposit is very rich. The New York Hill mine is soon to be reopened. Coe has stopped for repairs. Webster & Co's gravel claims are being worked successfully. Town Talk mill yields well. The Co. talk of putting up a steam engine. Red Jacket claims are worked in good shape.

PLACER COUNTY.

SHIPLEY MINE.—*Herald*, Feb. 4: This mine and mill belonging to McFadden & Sears, is now incorporated and the stock placed at \$500,000. There are a number of shafts on the two ledges, the Shipley and Trouble, and the main one is down eighty feet, with a draft forty feet, showing rich quartz all the way. Early in the week the workmen struck on some boulder quartz which was exceedingly rich.

BUCKEYE.—This mine is having seventy tons of quartz crushed at the Empire mill, which we were told, would yield \$100 per ton.

EMIGRANT GAP.—Joseph Hoaglan & Co., discovered a ledge two miles south-west of Emigrant Gap. When down twenty feet, the Co. shipped two and a-half tons of ore to Colfax which yielded \$14 per ton in free gold and \$11 in the sulphurets, making \$25 per ton in all. The ledge is four to six feet thick and well defined.

COLFAX.—Cor. of same: The Montana raised steam last week to test their machinery and it worked like a charm. This Co. are erecting a 10-stamp battery. The "Lafayette" has been taking out rock lately which prospects well. The "Colfax" has a pile of 30 tons on dump ready to be taken to mill.

OPHIR.—*Stars & Stripes*, Feb. 2d: We are informed that the St. Patrick Co. is working in rock which will yield over one hundred dollars per ton. Twenty-six tons from the Black Jack ledge crushed at the Empire mill yielded over forty-nine ounces of gold, or about eight hundred dollars. At the same mill they are now on a lot of seventy tons, from the Buckeye which is considered safe for seventy dollars per ton.

MICHIGAN BLUFF.—The Weske claim, on Turkey Hill, which yielded so enormously last year, has again commenced making generous returns. During the week ending Jan. 21st, it yielded over one thousand dollars, and during the next, seven hundred. The running expenses were less than one hundred and fifty dollars per week.

RATTLESNAKE BAR.—Cor. of same: The miners are commencing to wash, for the first time this season. Boles, Cray & Co., are washing and B. W. Houseworth & Co., commence to-day with the new pipe on the Wild Goose claims. Those claims with small heads of water and little pressure, were remunerative. With this extra pressure—60 feet—they will certainly be more profitable. There is not yet water enough to supply all.

PLUMAS COUNTY.

GOOD YIELD.—*Quincy National*, Jan. 28: The Deadwood Co. at Elizabethtown, for two men's work, two days last week, panned out about \$280.

SAN DIEGO COUNTY.

OUR MINES.—*Union*, Feb. 2d: We learn that the yield from the mines in the Julian and Banner districts is larger than since the discovery. Four 10-stamp mills are running.

The McMechan mill, since it was moved into San Felipe cañon has been doing good work. The Stonewall Jackson mill is running steadily on good ore.

SHASTA COUNTY.

THE SEASON.—*Courier*, Feb. 4: The last month of Winter is at hand, and the mining season is a comparative failure, the owners of many placer claims not having had water enough, so far, to enable them to even commence sluicing. Some have had enough water to enable them to run for a few weeks, at a great disadvantage. The few miners whose claims are under ditches from living streams, such as Clear Creek and Cottowood, have generally done well.

SIERRA COUNTY.

ITEMS.—*Messenger*, Feb. 4: The Independence mine has again been started. Arrangements have been made by which money was obtained to pay off the hands. The Hog Cañon mine is in the hands of Silverman & Co. We are informed that they have already got men at work and will soon have things in order. We learn that Spencer & Co. propose to purchase the Chips' mine, and place upon it the machinery now at Gold Valley.

ITEMS.—*Democrat*, Feb. 2d: J. K. Code, of the Oro mine, crushed some rock from that ledge last week in a band-mortal and got a good prospect. The indications are that they are near the rich chimney on which the first work was done. The two 16-stamp mills and twenty stamps in the new mill at Reis mine are in operation. Fred Wehe has sold his interest in the Wehe Ledge to Henry Kruse.

TRINITY COUNTY.

ITEMS.—*Journal*, Feb. 4th: In Oregon Gulch all are at work with an average supply of water. Among the best claims are those of Slattery Bros., Donovan & Conda.

Cleary & McCarthy. The former employ six Chinamen, and are running day and night. Several companies at Junction City have given up hopes of water this season and gone to drifting. Taylor's Flat miners are ready for work, but have no water. John Franklin has found good diggings on Cañon Creek, just below McGillivray's dam. At Douglass City, Mason, Marshale & Co. are in 100 feet with their tunnel. The claims about Douglass are all working.

Nevada.

COPE DISTRICT.

ITEMS.—Owyhee *Avalanche*, Jan 28:—The boiler and engine for the Argenta hoisting works have arrived. The new shaft is down seventy feet. Vance's mill is running on Bull Run ore. Norton's mill has been crushing Excelsior rock, and small lots from various ledges. The Blue Jacket mine at Bull Run has been sold to an English Co. for \$20,000.

ELY DISTRICT.

BULLION.—The *Record* of Jan 29th says:—The Meadow Valley alone sent from Pioche during December, 1870, \$151,675; \$7,000 less than all the companies combined shipped from White Pine County during the same month—their shipment amounting to \$158,000. The Burke, Creole, Rutherford & Hanchett and others, all produce bullion in the same proportion.

EUREKA DISTRICT.

FINE BULLION.—*Sentinel*, Feb. 4th: Ogdun, Dunne & Co. have for days together run out bullion of a value above \$500 to the ton, and on Tuesday last they produced some tons that assayed \$1,051.

TAYLOR'S SILVER WEST.—This new furnace is about ready to run. It has been fired up to dry the lining for some days.

HUMBOLDT.

The *Silver State* of Feb 4th learns that a very rich and extensive vein of ore was developed on Thursday in the De Soto mine.

The Elko *Independent* of the 4th says a contract has been made with the owners of the Cosmopolitan mine, in Bloody canyon, rich in antimony, to deliver to a San Francisco Co. at Mill City, 50 tons of ore per month, at \$25 per ton. The mine will produce an unlimited amount of that ore.

REESE RIVER.

BULLION.—*Reveille*, Feb. 4th:—During January there were shipped through Wells, Fargo & Co. 87 hars of silver bullion weighing 6,841 pounds, of the value of \$92,017 21.

BULLION FROM MONTEZUMA.—Mr. McGlewin arrived yesterday bringing 11 bars of silver bullion, of the value of \$7,000.

WASHOE.

SUCCESS.—*Enterprise*, Feb. 5th. The mine is half a mile north of Silver City; and is in a most prosperous condition. The ores are run directly from the tunnel into the mill. Although an "outside" mine, the day is not distant when it will rank among the foremost.

HALE AND NORCROSS.—In this mine they are laying a sill floor in the eighth level and breasting out the ore between this and the seventh. Two hundred and thirty tons of ore is the present daily product, thirty of which is from the upper mine.

SAVAGE.—This is producing 135 tons per day from the sixth, seventh and eighth levels. Many prospecting drifts for reopening the old levels are being prosecuted.

CROWN POINT.—The raise upon the new ore body on the 1,100 foot level is up 100 feet, and is still in fine ore.

BELCHER.—The receipts for the past year were \$278,541, including \$204,253 from bullion, and \$72,695 from assessments. The expenses were \$377,917—the leading items being \$123,214 for crushing ores, and \$85,388 for labor, leaving \$624 cash on hand. During the year the amount of ore crushed was 11,353 tons, yielding an average of \$17 99 at a cost of \$10 85 per ton.

VIRGINIA CONSOLIDATED.—In this mine the northwest drift is in 195 feet and has cut the east clay of the vein.

CHOLLAR POTOMI.—During the week they have extracted 1,500 tons of ore, 1,450 of which have been sent to the mills. The average assays have been \$69 10.

SIERRA NEVADA.—About the usual ore is being reduced at the mill of the company and the Berry & Evans mill. The old Sacramento mill is about starting up on Sierra Nevada ore.

OPHIR.—The operations are principally confined to the development of the southern part of the mine. Good progress is being made in the "up-rise."

BUCKEYE.—The Franklin mill, on Carsou River, is crushing 18 to 20 tons of ore per day for the company. The ore is taken out at the depth of 130 feet.

YELLOW JACKET.—The main shaft is being sunk for a new level. The drifts on

the two lower levels have as yet cut no ore. SEGREGATED BELCHER.—But little work is being done. A large amount of ore lies upon the dump and there are a few men engaged in running prospecting drifts. GOULD AND CURRY.—There is about the usual yield of ore from the old levels. A good deal of prospecting is being done. SUTRO TUNNEL.—The tunnel was in yesterday 1,810 feet. It is in hard green stone, and the face of the tunnel is quite wet.

OVERMAN.—About the usual ore is being taken. The legal troubles with the Calcedonia have not yet been settled. HOPE.—The mine is keeping the mill in constant operation. They have about the usual flow of water in their lower workings. DANNEY.—The drift from the engine shaft is in fifty-three and a half feet. The rock is becoming softer. All the machinery is working well.

WHITE PINE. We have space this week for only a brief extract from the "Review" of the *News of Feb. 4th*: The same general activity in the extraction and reduction of our milling ores is maintained; yet many mines on the Hill of much worth, are as yet idle. Of this class holding good milling ore, we note the Potts, Auburn, Addington and others, while Blue Hill furnishes the Uncle Sam, Westford, Cactus, Domingue and Bower & Brown. The Truckee has for six months rewarded its prospector with ores of the first-class, milling \$200 per ton, and its second upwards of \$100. The Bullion Hill mines—rich and extensive, are disgracefully inactive: The mines contiguous to Gov. Blasdel's mills, if worked with energy, would be sufficient to supply those silent works. The Minnesota has given assays of \$10,000 per ton; but the weakness or indifference of its owners has paralyzed its working.

Arizona. BRADSHAW DISTRICT.—Prescott *Miner*, Jan. 28: Parties just returned agree in pronouncing it the richest district ever seen. A party arrived in town Thursday from Bradshaw, with several sacks of ore from a recently discovered silver ledge, said to be of immense size and richness. Messrs. Head and Hammond, informed us that very rich gold ore was being taken out of the Del Pasco and other lodes. About 20 men were engaged in placer mining, and making fair wages.

ITEMS.—The Davis lode, in Hassayampa, assays largely in both gold and silver. The owners talk of trying a few tons of ore at the Chase mill.... On Lynx Creek, Uncle Billy Pointer and C. Y. Shelton, are pursuing work with results quite flattering. Shelton is negotiating for the purchase of the Eureka mill.... The Big Bug mill is running on good ore. The Eugenie pays regularly.... The Vulture mill is running as usual, and the aspect of mining matters is bright.

Colorado. ITEMS.—Central City *Register*, Jan. 18th: Hinds, Helmer & Co. are working the Trojan lode, Grand Island. At a depth of 70 feet they have eight inches to a foot of ore, partly decomposed, which yields by assay \$200, coin, per ton.... The Dallas lode is paying well. Lynn & Co. are working it under a lease from Germain Bros. Their mill ore yields six ounces per cord, besides which they are taking out considerable galena to be sold to the Western Smelting Co.

THREE PANS OF DIRT.—The *Tribune* publishes a letter from Ben. Barnard, Oro City, Lake county, dated Jan. 14th: "I washed out from one pan of dirt from the Pilot lode, 48 ounces and 18 pennyweights of gold. On the 9th I washed from two pans, 104 ounces—the three pans averaging a little over 50 ounces each. On the tenth I washed from one pan a little over 16 ounces. We had several nuggets in the lot. One weighed 14 ounces."

GRAND ISLAND.—*Register*, Feb. 1st: An assay by Mr. Burlingame of average ore from the Shamrock lode, gave six ounces gold, and 21 ounces silver. This is a recent discovery, and the ore came from fifteen feet below the surface.

THE GEORGETOWN correspondent of same says the ore now found on the east slope of Leavenworth Mountain is immensely rich. The richest veins are but a few inches thick, but they yield as high as 1,300 ounces per ton.

NEVADA DISTRICT.—*Herald* of Jan. 28th: Charles Hagar is taking ore from the Monitor lode which runs \$224 to the cord. On the California Stalker's claim is yielding well, as is the Collins & Mackay. C. S. Jones is working his new discovery, supposed to be an extension of the Kansas. His quartz has yielded 7 ounces and is improving.

GEORGETOWN.—*Miner*, Jan. 26: A large deposit of very rich ore has been struck in the Snow Drift mine. The ore assays from \$500 to \$1,500 per ton in coin.... The Cashier mine shows a solid breadth of crevice material, argenteiferous galena, of sixteen inches, carrying one hundred ounces in silver per ton and fifty per cent. of lead.... One ton and a half of ore from the E. Plumbus Unum lode, give a net profit of \$358 per ton.

GOLD SHIPMENTS.—The *Herald* says the amount for December from Gilpin county was \$73,000 coin. For the year 1870, \$1,210,625. The report from Clear Creek county, for 1870, of bullion produced and ore shipped, is \$415,066.

Idaho. ITEMS.—*Avalanche*, Jan. 21: The new steam hoisting works at the Chariot mine are in operation.... The foundation at the Peck & Porter for the old Chariot hoisting works is completed; the machinery is on the ground and will be in working order by the latter part of next week.... It is reported by those who know, that the Rising Star will start up next spring.... Wells, Fargo & Co., shipped from here last week 19 bars of bullion, valued at \$49,317.

NORTHERN IDAHO.—A correspondent writes the *Walla Walla Union* of Jan. 14th from Warren's Diggings, that the Rescue Co. have struck ore that will yield a thousand dollars to the ton. The mine is worked night and day—over one hundred tons are ready for reduction. The mill however is a wretched affair. Sanders & Co. are getting out very rich ore from the "Key-stone" mine. They crush by arrastra. Several other mines will be worked next summer. We know now that we have immense quantities of good ore, but lack the proper means for reducing it.

The Boise City *News* of Jan. 28th, says the prospects are favorable that there will be an abundance of snow in the mountains for mining purposes this spring. It has been falling heavily for several hours, north.

Montana. LINCOLN GULCH.—Cor. of Deer Lodge *Independent*, Jan. 28:—Lingnest & Co., and Adams & Co., are working regularly. The Lincoln Drain Co., are blocking out their ground, and Hathaway & Co., are preparing for spring operations. Sour Kraut has proved a success. The 1st Drain Co., have been washing all winter; the 2d Drain Co., will be fairly washing by the middle of February; the 3d Drain is pushed vigorously; the 4th are ready to commenced drifting from their open cut, which is now ten feet deep. That Sour Kraut will pay for a distance of six miles, is considered certain.

WHITLATCH MILL.—*Helena Gazette*, Jan. 30:—McClure & Sanderfer yesterday made a clean-up of 293 ounces of gold at Unionville, from eleven days' run on quartz from their mine.

VIRGINIA CITY.—The Oro Cache mill is running day and night on \$45 ore. Their tunnel is in 400 feet on the lode and the crevice is three feet wide. Brown's Gulch mill, also under John How, is running day and night on \$25 quartz.

PROSPECTS FOR 1871.—The *Mountainian* says the year opens well. Things have a more permanent look. Mines worthless a year ago are now valuable. Abandoned districts have been proved rich by a few hard workers. Farmers too, are better posted, and hopeful. People act now as if they had come to stay.

FOREST CITY.—Cor. of Missoula *Pioneer*, Jan. 26:—Only four claims are yielding pay dirt now. Two of these, 56 and 57, are washing; the others, 61 and 62, are dumping to wash in the spring.

New Mexico. CIENEGA.—The Cor. of the *Santa Fé Post* of Jan. 21st gives a long list of New York assays of ores from these mines, in Southern New Mexico. The lowest is \$81 per ton, and the highest \$8,100.

Oregon. EAGLE CREEK.—The editor of the *Mountain Democrat* says that there is a terrific excitement raging in regard to the "diggings" and the new ditch about to be constructed.

Utah. THE EMMA.—The *Colorado Herald* of Jan. 21st gives the price paid for three-fourths of this mine by W. B. Lent & Son and others of San Francisco as \$900,000 gold. Warren Hussey, the owner of the remaining fourth, declines to sell.

A BEAUTIFUL SIGHT is the single stem of an orange tree on exhibition at the Odd Fellows Library in this city. This stem was recently taken from a tree grown by Paul Kearns, of Los Angeles and contains seventy-five full grown oranges.

Mining Stocks. SAN FRANCISCO, Thursday Eve., Feb. 9. The Mining Share Market has been quite brisk during the past week, the most prominent facts being the advance in Belcher and Crown Point. The former reached \$15.75, the highest point it has attained for many months. Amador has been quoted twice at \$305, and Enreka twice, at \$76 and \$75. Gould and Curry declined considerably, as also Savage.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock,

	Feb. 2.	Highest.	Lowest.	Feb. 9.	Adv.	Dec.
Alpha.....	84	4	4	—	—	—
Belcher.....	10	10	14	—	—	—
Chollar-Potosi.....	75	73	76	—	—	—
Crown Point.....	33	38	31	27	4	—
Eureka Cons.....	13	13	12	1	—	—
Golden Chariot.....	81	81	83	2	—	—
Gould and Curry.....	45	46	38	40	—	—
Hale and Norcross.....	102	102	98	99	—	5
Ida Elmore.....	7	12	7	11	3	—
Imperial.....	6	6	7	—	—	—
Kentuck.....	32	32	30	30	—	2
Meadow Valley.....	28	30	28	29	—	—
Ophir.....	3	4	3	4	1	—
Ophir-Hid Treas.....	3	3	3	—	—	—
Overman.....	5	5	4	5	—	—
Savage.....	45	45	35	39	—	6
Sierra Nevada.....	14	14	13	14	—	—
Yellow Jacket.....	41	43	41	41	—	—

Latest Mining Stock Prices.			
[S. F. Stock and Exchange Board.]			
BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	—	Ida Elmore.....	—
Amador.....	307½ 312½	Imperial.....	6
Belcher.....	14½ 14½	Kentuck.....	28 30
Chollar-Potosi.....	76½ 76½	Occidental.....	4
Crown Point.....	37½ 37½	Ophir.....	3½ 3½
Danney.....	—	Ophir-Hid Treas.....	3 3½
Eureka Mill.....	—	Overman.....	—
Eureka.....	—	Savage.....	28½ 39
Golden Chariot.....	—	Silver Wave.....	— 3½
Gould & Curry.....	39½ 40	Sierra Nevada.....	13½ 13½
Hale-Norcross.....	99½ 99½	Yellow let.....	40½ 41

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT.	OF SALE.	DAY
Alleghany, Sierra Co., Dec. 27, 50c.....	Jan. 27—Feb. 13*		
Argenta, Nevada, Dec. 17, 50c.....	Jan. 19—Feb. 17		
Cherokee Flat Blue Gravel, Feb. 4, \$5.....	Mar. 10—Mar. 28		
Confidence, G. H. Feb. 6, \$3.....	Mar. 13—Mar. 21		
Continental, W. P., Dec. 31, \$1.....	Feb. 6—Feb. 22*		
Danney, Nevada, Jan. 10, \$1.50.....	Feb. 14—Mar. 4		
Deep Spring, Inyo Co., Co., Jan. 14, \$1.....	Feb. 25—Mar. 4*		
Eagle Quicksilver, S. Bar. Co., Feb. 8, \$20.....	Apr. 4—Apr. 10*		
El Refugio, Santa Cruz Co., Jan. 18, 65c.....	Feb. 21—Mar. 14*		
Imperial, G. H., Feb. 1.....	Mar. 7—Mar. 24		
Kentuck, G. H., Jan. 17, \$17, \$10.....	Feb. 20—Mar. 14		
Jennie A. Cons., Dec. 31, 10c.....	Feb. 14—Feb. 27*		
Kincaid Flat, Toiyabe Co., Jan. 12, \$2.50.....	Feb. 10—Mar. 4		
Manmoth, W. P., Jan. 31, 10c.....	Mar. 10—Mar. 31		
Marble Falls, Nye Co., Nev., Feb. 6, 25c.....	Mar. 9—Mar. 27*		
Maxwell, Amador Co., Dec. 21, \$2.....	Feb. 7—Mar. 7		
Meadow Valley Ex., Nev., Dec. 21, 50c.....	Jan. 23—Feb. 13		
Nevada, Nevada, Jan. 19, 25c.....	Feb. 20—Mar. 13*		
Noonday, Nevada, Jan. 19, 20c.....	Feb. 23—Mar. 17*		
Ophir, Placer Co., Dec. 13, 40c.....	Feb. 5—Feb. 27*		
Ophir, Placer Co., Jan. 11, \$2.....	Feb. 14—Mar. 4		
Placer, Placer Co., Jan. 4, \$6.50.....	Feb. 15—Mar. 11*		
Seg. Belcher, G. H., Jan. 14, \$2.....	Feb. 10—Mar. 8		
Silver Wave, W. P., Dec. 10, \$1.50.....	Jan. 11—Feb. 28*		
St. Patrick, Placer Co., Dec. 27, \$1.....	Feb. 1—Feb. 20*		
Taylor, El Dorado Co., Jan. 31, 50c.....	Mar. 6—Mar. 27*		
Virginia, W. P., Dec. 17, 50c.....	Jan. 23—Feb. 14		
Washington, Mariposa Co., Dec. 12, \$3.....	Jan. 16—Feb. 6*		
LATEST DIVIDENDS—(Within Three Months.)			
Black Diamond, ½ per ct.....	Payable Feb. 6		
Chollar-Potosi, \$5.....	Payable Feb. 10		
Chollar-Potosi, \$5.....	Payable Feb. 15		
Eureka, \$2.....	Payable Feb. 7		
Golden Chariot, div. \$6.....	Payable Feb. 10		
Hale & Norcross, div. \$5.....	Payable Feb. 10		
Meadow Valley.....	Payable Feb. 9		
North Star, div. \$1.....	Payable Jan. 10		
Sierra Nevada, div. \$1.....	Payable Jan. 16		
Yellow Jacket.....	Payable Feb. 10		

—*Advertised in this journal

San Francisco Market Rates.

Wholesale Prices.		FRIDAY, February 10, 1871.	
Sugar, crushed, #.....	14½	14½	15
Do. Hawaiian.....	9	9	12
Coffee, Costa Rica, #.....	21½	21½	22
Do. Rio.....	19½	19½	—
Tea, Japan, #.....	60	60	1.00
Do. Green.....	60	60	1.00
Hawaiian Rice, #.....	8	8	9
China Rice, #.....	7	7	8
Corn Meal, #.....	50	50	60
Candles, #.....	14	14	18
Overland Butter.....	30	30	35
Ranch Butter, #.....	40	40	45
Butter, #.....	25	25	30
Cheese, California, #.....	9	9	15
Eggs, # dozen.....	20	20	22½
Ham and Bacon, #.....	12½	12½	15
Ham and Bacon, #.....	15	15	17
Shoulders, #.....	9	9	10
Retail Prices.		FRIDAY, Feb. 10.	
Sutter, California, fresh, #.....	50	50	60
Do. pickled, #.....	40	40	50
Do. Oregon, #.....	20	20	25
Cheese, #.....	20	20	25
Honey, #.....	25	25	30
Eggs, # dozen.....	41	41	45
Lard, #.....	18	18	20
Hams and Bacon, #.....	22	22	25
Gravies, #.....	22	22	25
Potatoes, #.....	2	2	3
Potatoes, Sweet, #.....	2	2	3
Tomatoes, #.....	2	2	3
Onions, #.....	2	2	3
Apples, No. 1, #.....	4	4	5
Pears, Table, #.....	5	5	6
Plums, dried, #.....	10	10	12
Peaches, dried, #.....	10	10	15
Oranges, # dozen.....	50	50	75
Lemons, # dozen.....	50	50	75
Chicken, #.....	75	75	80
Turkeys, #.....	10	10	15
Soap, Pale and C. O.....	10	10	15
Soap, Castile, #.....	18	18	20
PRODUCE.		FRIDAY, Feb. 10.	
Flour, Extra, # bbl.....	7.00	6.75	7.00
Do. Superfine.....	6.00	5.75	6.00
Wheat, # 100 lbs.....	2.25	2.25	2.45
Do. # 100 lbs.....	1.40	1.40	1.50
Barley, # 100 lbs.....	1.35	1.35	1.50
Beans, # 100 lbs.....	1.87½	1.87½	2.00
Potatoes, # 100 lbs.....	1.00	1.00	1.75
Hay, # ton.....	10.00	10.00	12.00
Live Oak Wood, # cord.....	10.00	10.00	12.00
Soft extra, #.....	8	8	12
Sheep, on foot.....	2.00	2.00	2.50
Hogs, on foot, #.....	6	6	6½
Hogs, dressed, #.....	7½	7½	8

Leather Market Report. [Corrected weekly by Doherty & Bro., No. 109, Post st.]

Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, Feb. 9.

SOLE LEATHER.—Shipments to the east still continue large, and several tanners have advanced their price one cent per lb.

City Tanned.....	26	@29
Santa Cruz.....	26	@31
Country.....	25	@28

CALF AND KIP SKINS.—There is no change in French stock, the exportation being extremely light. Domestic skins continue firm, with a tendency to advance.

Best French Calf Skins, # doz.....	75 00@100 00
Common French Calf Skins, # doz.....	35 00@ 75 00
French Kips, # lb.....	1 00@ 1 30
California Kip, # doz.....	60 00@ 75 00
California Kip, # lb.....	1 00@ 1 25
Eastern Wheel Stuffed Calf, # lb.....	80@ 1 00
Eastern Bench Stuffed Calf, # lb.....	1 10@ 1 25
Eastern Calf for Backs, per lb.....	1 15@ 1 25
Sheep Roams for topping, all colors, # doz.....	8 50@ 13 00
Sheep Roams for linings, # doz.....	5 50@ 10 50
California Russet Sheep Linings.....	1 75@ 5 50

HARNESS LEATHER.—

Full Bridle, # lb.....	30@ 37
Galvanized, # lb.....	38@ 40
Skirting, # alder.....	4 50@ 4 75
Wet Leather, # doz.....	30 00@ 50 00
Buff Leather, # foot.....	22@ 26

San Francisco Metal Market.

PRICES FOR INVOICES. Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, Feb. 10, 1871.	
IRON.—Duty: Pig, \$7 per ton; Railroad, 60c # 100 lbs.; Bar, 101½c # 100 lbs.; Sheet, polished, 3c # 100 lbs.; common, 1½@1½c # 100 lbs.; Plate, 1½c # 100 lbs.; Pipe, 1½c # 100 lbs.; Galvanized, 2½c # 100 lbs.	
SCOTCH AND ENGLISH IRON.—	
White Pig, # ton.....	\$34 @35 50
Refined Bar, bad assortment, # lb.....	— 32 @ 33 00
Refined Bar, good assortment, # lb.....	— 04 @ —
Boiler, No. 1 to 4.....	— 04½ @ —
Plate, No. 5 to 9.....	— 04 @ —
Sheet, No. 10 to 13.....	— 04½ @ —
Sheet, No. 14 to 20.....	— 05 @ —
Sheet, No. 24 to 27.....	— 05 @ —
Composition Bolts.....	— 21 @ —
COPPER.—Duty: Sheathing, 3½c # 100 lbs.; Pig and Bar, 2½c # 100 lbs.	
Sheathing, # lb.....	— @ — 26
Sheathing, Yellow.....	— 20 @ —
Sheathing, Old Yellow.....	— 10 @ —
Composition Nails.....	— 21 @ —
Composition Bolts.....	— 21 @ —
TR. PLATE.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, IX, # box.....	12 00 @ —
Plates, I C Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Bacon Tin, Slabs, # lb.....	— @ — 42
STEEL.—English Cast Steel, # lb.....	— @ — 15
QUICKSILVER.—# lb.....	— @ — 90
LEAD.—# lb.....	— @ — 7
Pipe.....	— @ — 11
Bar.....	— @ — 9
ZINC.—Sheet, # lb.....	— @ — 11
BORAX.....	— @ — 28

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

RAILROAD M. Co., Sutter Creek, Cal.—Feb. 1. Capital Stock, \$600,000. Trustees: D. D. Cotton, M. S. Latham and R. C. Harrison.

PROCE S. M. Co., Nevada.—Feb. 1. Capital Stock, \$2,000,000. Trustees: A. H. Rutherford, G. W. Rutherford, A. Hayward, J. D. Fry and C. N. Felton.

INDEPENDENT G. M. Co., Butte County.—Feb. 8. Capital Stock, \$250,000 in 20,000 shares. Trustees: J. F. Dinn, J. P. Thompson, C. Swift, W. Blackwood and J. S. Pond.

The following have filed certificates with the County Clerk, Sacramento.

NAPA COAL M. Co.—Feb. 3. Capital Stock, \$3,000,000 in 30,000 shares. Trustees: W. C. S. Smith, G. N. Cornwall, W. R. Brown, E. N. Boynton and J. Mudgett.

Meetings—Elections.

CHEROKEE FLAT BLUE GRAVEL CO.—Feb. 4. Trustees: A. Caselli, O. P. Sutton, H. Kozminsky, J. Bandmann and G. E. Rogers.

LATAWANA M. Co.—Trustees: J. H. Wise (President), J. A. Drinkhouse (Treasurer), E. W. McKinstry, P. Conklin, M. M. Baldwin, G. Southwell and G. A. Harris. Secretary, A. Martison.

CAL. POWDER WORKS CO.—Trustees: J. H. Baird (President), J. B. Haggin, N. G. Kittle, J. O. Earl and G. B. Lawton.

IMPROVED BEE-HIVE.—J. R. A. Williams, Colnsa, Cal. Mr. Williams has invented a hive which will tend greatly to improve the health of the bee, and afford protection against its enemies. For this purpose, the hive is so constructed as to secure perfect ventilation of every portion of the hive, where ventilation is necessary, and the entrance is so arranged as to provide against the inroads of the bee-moth or miller. These important objects are secured in a simple but ingenious manner, and advantages obtained thereby are such as to recommend the device to all lovers of sweets and persons owning apiaries.

CALIFORNIA WINES FOR CHINA.—Mr. Bigbey, shipped by the last China steamer 23 cases of his wines to Shanghai.

A GOON ACCOMMODATION.—The C. P. R. R. has lately attached a sleeping car to the freight trains between Sacramento and San Francisco, leaving each place in the evening. Passengers report it very satisfactory as they lose no time and arrive fresh for business or pleasure.

INDUSTRIAL MISCELLANY.

Reclaiming Alkaline Soils.

There are few agricultural districts in this State, or on this coast, where there cannot be found tracts of alkaline soils. In some places it will show itself in the salt-grass and weeds peculiar to such soils; in others it may be seen glistening like frost upon the surface, or blackening the water that settles upon it. In no one thing does the soil of this coast differ from that of the Eastern States, more than in its superabundance of these salts. There the soils are generally too acid, while here too much alkaline matter is frequently found. Our alkali would be good manure for many eastern farmers; while if we could get their sour, swamp soil, rich in vegetable mould, it would be just the thing to mix with our saline soils.

The various cheap compositions of lime, soda, and potash, make the best manures for the sour Eastern soils; while on our soils, already too full of such salts, they would be an injury, instead of a benefit to growing crops.

The plowing under, and plowing in, of straw, strawy manure and grain crops, will tend to correct the surplus alkaline matter in our soils, by absorbing, and through chemical decomposition, neutralizing the active principles that are injurious to growing crops; as also in making light and porous such soils as have become compact, by settling in low places.

In such places as can be flooded with water; where the water, after dissolving the alkaline salts, will readily drain off, such washing, is one of the best means that can be taken to get the surplus salts out of the soil.

Where the strata of alluvium containing the surplus salts is shallow or thin, this method will succeed admirably; while the plowing in of manure and green crops, with a cultivation of beets or some crop which absorbs the salts, will reclaim the land.

But where the strata of alkaline alluvium is deep, and the alkali is constantly rising to the surface, and being deposited, through capillary action and evaporation, there is something else necessary to be done to avoid it.

A thorough system of deep underdrainage will accomplish much towards such an end. The alkali from beneath will rise only as high as the underdrainage, and flow away with the water which holds it in solution. By such action the surface soil will soon lose its alkali, and, with proper tillage, become very valuable.

Our alkaline soils—now comparatively valueless—when once fairly reclaimed, make the richest and most productive tracts when rightly handled. The "mystery of farming" ceases to be a mystery when intelligently comprehended and understood. If the "power of mind over matter" was as fully realized in agriculture as it is in mechanics,—and the time is coming when it will be,—successful cultivation would be no stranger than successful engineering.

RAILROADS VS. FENCES.—The question as to whether railroad companies, were compelled to build fences along the line of their road and keep them in order to prevent the killing of stock along said line, has repeatedly been before our courts; but, until very recently, there has been no definite construction of the law given. We see in the case of McCoy vs. the California Pacific Railroad Company, the Supreme Court has decided that a railroad company is bound to build fences along the line of the road, and that in the absence of such fences they (the company) are responsible for the live stock they kill on the track. This is one of the most important decisions yet rendered by the Supreme Court of this State in the interest of farmers and stock-raisers, and more particularly does this decision beneficially apply to parties resident upon the lines of railroad.

A New Silk Project.

We have been shown a letter wherein a tract of some 3,000 acres of land, at the Mission San Jose, is offered for sale at \$400,000; the project being for the establishment there of an extensive silk producing and silk manufacturing establishment. The mover in this matter is Joseph Newman, the pioneer silk manufacturer of this state, who proposes to organize a company to make the purchase, and start the operation, which will be conducted on the co-operative plan.

Mr. Newman assures us that quite a number of capitalists have already expressed their willingness to take hold of the enterprise, and he feels confident that he shall soon be able to secure the additional amount required to place the scheme in a shape to commence operations.

The capital stock proposed is \$500,000, in shares of \$100 each, giving \$100,000 for a working capital. The plan is to purchase the above mentioned tract, to build tenements on the same for the benefit of the operatives employed, and to charge such rents as will be convenient for both capital and labor. Members will be entitled to hold as many shares as they want, but with limited rights of voting, as follows:—The holder of one share, one vote, three shares, two votes, five shares, three votes, and each additional five shares, one vote. The stock will have to be paid in full, in small monthly or quarterly installments.

Each operative at the factory, after found competent by the General Superintendent, must become a shareholder of the company. Operatives who occupy tenements for three or five successive years, and pay rent for the same will be entitled to a free deed.

In order to secure experienced and reliable labor it is proposed to set aside \$25,000, for the purpose of helping to this state such emigrants as may be needed, the amount advanced to them to be deducted from their wages in small monthly installments.

Apprentices, of both sexes will be taken, who, after serving their time, will be entitled, in addition to their regular wages, to two or three shares of the stock, according to the time and nature of service.

It is proposed that the company shall plant, buy, and sell everything connected with the silk interests, and manufacture silk in all its branches in conformity with the demands of the market, solely from California cocoons, or raw silk raised and reeled in California. If it goes into operation, 200,000 mulberry trees will be planted the present season.

No more opportune time than the present, has ever been presented for inaugurating such an enterprise. The recent advance in the price of silks, growing out of the European war, will probably be kept up for many years. Mulberry trees can now be had in this state, at a very low figure. The eggs being no longer in demand. Silk worm raisers in this state must this year turn their attention exclusively to raising cocoons, which will be furnished cheap to any establishment that may have the means of utilizing them. Moreover, the stoppage of the silk looms of France has closed a large market for raw silk, which will now seek purchasers nearer home and at greatly reduced prices.

Such advantages, coupled with the superior economy and efficiency of the co-operative system of labour, and the plan proposed of securing a proper proportion of skilled labor from abroad, ought, with proper management, to make the projected enterprise a paying one. If successful it would prove of immense benefit to the state at large in furnishing a ready, home market for the immense number of cocoons which must hereafter be produced here, and in giving a practical start to an industry which, fairly inaugurated, will furnish full employment, not only to our present population, but to any number of future millions which may hereafter be attracted to the Pacific coast.

Pacific Coast Industry.

The record of exports from this city shows, most unmistakably, that the general industry of the Pacific Coast is in a prosperous condition. The sum total of the products of our industry, aside from the precious metals, is considerably in excess of \$20,000,000. That of this State alone reaches very near or quite to that amount.

Our exports of wheat for the year 1870, were within a small fraction of \$8,000,000 in value. Though something less than last year, the larger surplus holding over, and the advanced price which it commands, will bring it fully up to last year's figure. Had the season been favorable there would have been quite a large excess.

Our wool product makes a still better proportional exhibit. The yield has increased from 897,938 pounds in 1866, to 3,655,000 pounds for 1870. This is surely most satisfactory progress. Some important facts and suggestions, with regard to this great industry, will be found in another column of our present issue.

Our leather interest presents an almost equally satisfactory exhibit. Although its increase may not be so rapid, its progress is healthy and highly creditable to the State. California leather takes the highest rank in the Eastern States, commands the highest price in the market, and has always a ready sale. One manufacturing house exported 100 tons of leather during six months, only, of the past year.

The general manufacturing industry of the State is steadily progressing in importance and value.

The Pacific Rolling Mill of this city has added the rolling of railroad iron to its other operations, and has taken a contract to furnish a large portion of the iron for a 25-mile section of the Northern Pacific Railroad.

The San Francisco Smelting Works, owned by our worthy Mayor, T. H. Selby, in company with an Eastern party, is doing a very large and profitable business; is working up the "mrtte" from our "baso metal mines." Large quantities of barlead, lead pipe and shot, not required for consumption here, is being shipped East.

Our woollen manufactures are also doing a thriving business and answering large orders from the East.

More than half of all the boots and shoes worn on this coast are now made here; while five years ago more than four-fifths of our supply was obtained from the East. Many minor manufacturing interests—large in the aggregate—have also become well established among us, and others are being constantly introduced. Mr. Strong, an experienced cotton planter from the South, is making preparation to enter largely into the culture of cotton in this state, where he believes the middling grades of that textile can be grown more advantageously than in the so-called cotton states. If his experiment succeeds a new industry of magnificent proportions will be opened up to the state.

The culture and manufacture of silk is becoming more and more promising, and there is every reason to believe that we shall soon be producing silk in considerable quantity, from California cocoons. Arrangements are now in progress which will result in the introduction here of a few skilled operatives from abroad, through whose instructions our own people will soon be able to utilize the thousands of mulberry trees, now coming to maturity in various portions of the State.

We have already in the market, sugar, the product of our own soil and manufacture, which will compare favorably with any imported article; and it is safe to say, that this enterprise, so suddenly and so practically initiated, will very soon take a stand as one of the leading and most important industries of the State.

We may truly say that the year 1871 dawns upon us under circumstances most encouraging for our future prosperity.

Lawn Mower.

There comes to us the description of a very neat lawn mower, which seems to embody the good points of many other machines, without their objectionable features. This is the so-called "Landscape" mower, an illustration of which is here given, and of certain points of which mention may be made.

For throwing the machine in or out of gear, in place of a ratchet and spring, a patent friction pawl is used, so that the mower is always in gear when going forward, and always out of gear, and noiseless, when going backwards. This pawl is entirely concealed, and, like the gearing, is protected from obstruction by grass, dirt and other substances.

By means of an adjustable roller, in the rear of the knife bar, an easily-running machine is produced, which, we are told, accommodates itself to any unevenness of the ground, mowing borders or lawn alike, complete without trouble of change, and thus dispensing with shoes or rollers in front of the cutter, which beat down the grass and make it impossible to cut evenly.

The cutting surfaces are made of the best cast steel, hardened and tempered, and attached to a heavy fly in a very substantial manner. The whole machine is built with great care, and weighs 65 pounds. It cuts a 15-inch swath and can be operated by anybody. The price is \$25. The manufacturers claim long experience with lawn mowers of every description, and that they can recommend this with perfect confidence in its merits. They seem to have a very good article. For particulars, apply to Hovey & Co., No. 57 State street, Chicago, Ill.

HORSE HARNESSING MACHINE.—A correspondent of the *Rural New Yorker* says that a gentleman of that city has arranged a device whereby a horse may be unharnessed and the harness be hung up in thirty-two seconds!

The device consists of two small iron pulleys, a small cord three yards in length and a hook. One pulley is fastened to a joist directly over the horse's back, the other a yard to the left. The hook is to draw the harness up with, the cord being through the two pulleys, with an iron ring through the left hand end of the cord to fasten upon a large nail to hold the harness up. The harness must be made with the collar open at the bottom, with the hames attached to the collar, so that the harness will raise up from the horse. The lines are left over the dash, nor are they unbuckled from the head-stall; the tugs are left hitched to the buggy, so are the hold-backs, and the shafts are left in the loops; the head-stall is taken off with the lines attached, and hung upon the back-saddle; the hame-strap is unbuckled, the two girths unbuckled, and all the harness, with the shafts, are drawn up together. Of course the harness must be suspended directly over where the horse stands as he is driven into the carriage house. In harnessing, the animal is placed in the shafts, the harness lowered upon his back, the straps which have been loosened must be again made fast, the hook disconnected and the work is done. The device is applicable to double as well as single harness.

DUMMY ENGINES FOR SAN JOSE.—We believe it is generally known that the Santa Clara and San Jose Railroad Co. have ordered from the East one or more dummy engines. A recent number of the *Detroit Inventor* says of this engine:—"We examined the dummy engine invented and constructed for the San Jose and Santa Clara Railroad, and find them to be perfect models of compactness, power and simplicity. They are said, by the makers, to be almost noiseless in their operation, thus overcoming the prejudice which has long existed against the use of engines on street railroads."

AGRICULTURAL REPORTS.—We are under obligation to Hon. A. A. Sargent, our able and industrious Congressman, for late copies of the U. S. Agricultural Reports.

POPULAR LECTURES.

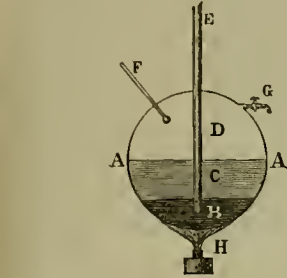
Vaporization and Elastic Force of Steam.

[Prof. JOHN LECONTE before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Steam Under Pressure.

LECT. IV. Feb. 4. I have before treated, said the lecturer, of the laws of the elastic force of vapor below the boiling point, and of boiling under the ordinary pressure of the atmosphere. I have now to speak of the laws under pressure greater than that of the atmosphere. When a liquid is converted into vapor, its volume is very greatly increased. For instance, one cubic foot of water has a volume of 1,698 cubic feet when converted into steam. This occurs under the ordinary pressure of the atmosphere; and, with this condition, steam (not in contact with water), or any vapor, if subjected to further increase of heat, takes a corresponding increase of volume.

If, however, we heat the vapor in the presence of the liquid, which we can do by heating it in a closed vessel, the elastic force increases more rapidly than does the temperature. This has two causes:—the vapor grows hot and strives to increase in volume, and fresh vapor is continually formed. Now this matter is very closely associated with the practical use of steam, and therefore is very important from a practical



point of view. So important is it that governments have engaged scientific men to investigate the matter, and have provided means for more extended research than would be possible for private parties, in order to ascertain the relations of increase of temperature and elastic force (or pressure) of vapors.

The first extensive and accurate experiments were commenced by Arago and Dulong, in 1829, at the instance of the French Academy. These were for the purpose of finding the elastic force of steam up to the highest pressure which can occur in practical life. They used an apparatus somewhat like this which we have here [and which is shown, in vertical section, in the accompanying cut].

Experiments.
We have here a closed vessel, A, of metal, in the lower part of which is placed mercury, B, and above this is water, C. On heating this by a lamp or fire below, at H, steam is formed, at D, which presses on the water and, through this, on the mercury. If we insert the bulb of a thermometer, F, into the steam, we can determine the temperature at all times, and if we insert into the vessel a glass tube, E, whose lower, open end extends into the mercury, we can also determine the pressure of the steam by the height to which the mercury will be forced to rise in this tube. G is a stop-cock or safety-valve, for allowing the escape of steam when the pressure gets too great for safety.

The inherent trouble in this experiment is, that the temperature and pressure both alter each minute, and consequently it is difficult to make exact observations. On this account, and to remedy one or two other errors, Regnault commenced, in 1841, a series of experiments which are still continued, unless the present war has put a stop to them. His work was done with the very greatest skill and accuracy. Arago and Dulong carried their researches up to a pressure of 24, and Regnault up to a pressure of 27 atmospheres, beyond which we cannot go in practice without great danger.

These experiments give the relation of pressure and temperature. [The lecturer showed tables found by experiment.] Above these pressures, we can only reckon by formulae deduced from the results obtained below them; but no formulae (although we have over 50) can be said to be exact.

The tables show why it is so dangerous to use steam at very high pressures. The danger arises not so much from the mere extent of the pressure, for we can make our vessels very strong, as from the fact that a slight variation of the temperature (which always varies in practice) at these high points causes a very great variation in the pressure.

As a vapor must have the same elastic force in all spaces which connect with one another, and as this force cannot be so great in the colder

er places as in the warmer, if we connect a number of vessels, filled with vapor, but some colder than the others, we find that the vapor in all takes the elastic force of the colder vessels. Watt's condenser is constructed on this principle.

The Most Economical Boiling Point.

We have seen that by increasing or decreasing the pressure on a liquid we can make it boil at almost any desired point. The question is then natural: Is it more economical to generate steam in practice at a high or at a low temperature? Watt was perhaps the first to investigate this subject, and he concluded that it made no difference. He found by experiment, if the boiling point is 100°, to heat one cubic foot of water from 32° to this point takes (100—32=) 68° of (sensible) heat, and to evaporate it takes 1062° of (latent) heat; total required to heat and evaporate, 68+1062=1130°. To heat from 32° to 212° and evaporate, takes 180° sensible heat and 950° latent heat; total, 180+950=1130°. To heat from 32° to 250° and evaporate takes 218° sensible heat, 912° latent heat; total, 218+912=1130°. The sensible heat is the heat required to raise the water to the point desired, the latent heat is the heat required to change a certain amount of fluid into vapor. We have seen that, no matter how much heat you apply to water (in the air), you cannot get the thermometer to rise above the boiling point. This excess of heat is not lost, but is absorbed by the water in changing into steam, and is called latent, because it disappears for the sense of feeling or the thermometer. [That heat is absorbed when a fluid evaporates can easily be made perceptible to the senses. If a person pours a little alcohol or other volatile liquid on the hand, he finds that the hand feels cold, for from it has been taken the warmth necessary to vaporize the liquid.]

Southern, a Scotchman, experimented and concluded that the latent heat was the same for all temperatures. Regnault's most careful observations show that both Watt and Southern were wrong, but that Watt was nearer the truth than Southern—was not very far out of the way in fact.

Persons acting on the idea that they could economize fuel by lowering the boiling point, introduced vacuum pans into sugar manufacture. They, of course, effected no economy of fuel; but, it may be remarked, they found an unexpected gain,—an increased production of sugar, because a smaller amount is changed into molasses.

Uses of Steam—A "Horse Power."

The uses of steam are two-fold: as a heating agent and as a mechanical agent. As a heating agent it is very valuable, because it can be so easily forced to any desired point, and because it has so large an amount of latent heat which it can be easily made to give up (by condensation) wherever it is required. As a mechanical agent its value is well known to all; it can be made to exert its tremendous elastic force one moment and then to stop, and thus can easily be utilized to perform work.

We often hear it stated by practical engine constructors that the evaporation of one cubic foot of water per hour is equal to one horse power; that, for instance, a 100-horse power engine should be constructed so as to evaporate 100 cubic feet of water per hour. We can calculate this as follows:

Suppose we had a very long tube, placed vertically and one foot square. At the bottom we put a cubic foot of water. There is a pressure on this water,—the pressure of the atmosphere, which is equal to 14.69 lbs. per square inch. Therefore the pressure on the surface of the water (1 square foot) is equal to 14.69 × 144 or 2,116 lbs.

Now if we change this water into steam, it will take up a space, as before said, of 1,698 cubic feet. But to do this it will have to raise this column of air, which weighs 2,116 lbs., up 1,698 feet. This requires a pressure of 2,116 × 1,698 or 3,589,200 foot pounds. We call a horse power equal to 1,980,000 foot pounds. Therefore the force of our steam equals 3,589,200 ÷ 1,980,000 or 1.81 horse power. But in practice we get only about six-tenths of the theoretical amount of work, and 1.81 × 0.6 = 1.08 horse power, which is quite near the amount stated.

The Most Economical Liquid—Distillation—Heat.

If we experiment with liquids, we find that many of them require less heat to evaporate a given amount than is the case with water. Would it, then, be not more economical to use them than it would to employ steam? Now the economy varies not only (inversely) as the total (sensible and latent) heat, but also directly as the volume of vapor generated. With many of these the volume is less, and when we consider that water is exceedingly cheap, we find that probably no other liquid will be substituted for it in practice, especially as many other substances exert a chemical action on the vessels which are used.

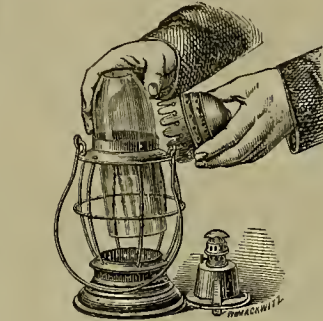
The process of distillation consists merely of successive vaporizations and subsequent condensations of a liquid. The object of distillation are: 1. To separate liquids from the solid mechanically mixed with them, as to purify water from dirt. 2. To separate liquids from (non-volatile) salts. 3. To separate liquids of unequal degrees of volatility, as alcohol and water. In this last case, several distillations are necessary, some water but more alcohol going over each time. We can thus get our alcohol nearly pure, with only 5 per cent. of water, but to get it absolutely pure is impossible by distillation. For this we must resort to chemistry.

Two hypotheses have been brought forward to explain the phenomena of heat. The older

one was that heat was a substance in bodies, a fluid surrounding the molecules. But to account for the heat generated by friction puzzled the upholders of the theory. Count Rumford made water boil by boring out a cannon immersed in the liquid, and Sir Humphrey Davy melted two pieces of ice, by rubbing them together, in a vacuum at a temperature below the freezing point. The latter theory, which is far more satisfactory, regards heat as the motion of the particles or atoms of bodies. When, according to this theory, we rub two bodies together, the motion of the mass is retarded, but motion is imparted to the molecules, and thus heat is generated. This hypothesis seems to explain all other phenomena of heat.

The "Novelty" Lantern.

The accompanying illustration shows sufficiently well the construction of a claimant for popular favor. It is so simple that a detailed description is not necessary. But the shape of the chimney may be remarked on. Instead of a round or pear-shaped globe, an ordinary straight lamp-chimney is used, which can be procured at



any country store for about fifteen cents. This is one of the great advantages of this contrivance which will be easily appreciated; for while the breakage of the glass renders the common lantern useless, this is not the case with the "novelty." The chimney is secured against all ordinary accidents, and can easily be replaced should it happen to get broken.

The lantern is said to give an excellent light, not to smoke the chimney, and to be particularly good in respect to not getting out of order. It answers the purpose of a house lamp or an out-door lantern, not being affected by wind or motion. A patent has been granted for it to Mr. A. Withmar, of St. Louis. Any enquiries with regard to it may be addressed to A. Withmar or to the Withmar Glass and Queensware Co., 113 North Main street, St. Louis, Mo.

STARTING NEWSPAPERS.—One peculiarity of our American people, and an encouraging one, is the eagerness which they show for starting a newspaper at a new place. The rapid growth of new settlements once astonished the outside world, but people have become accustomed to it now. But this feature of commencing a paper as soon as a town is founded, is now getting to be a common one, and to it we are indebted for the diffusion of a wide-spread intelligence among the inhabitants of our country. The excellent character and ability of many of the journals is really surprising; a "country paper" is by no means necessarily a dull, stupid sheet, but in our interior exchanges we often find matter which excels much in our "enterprising" city journals. We see it stated, by the way, that Kalama, a town just founded on the Columbia River by the Northern Pacific Railroad, is to have its paper. This is coming pretty near to reading before one is fairly born. The phenomenon can hardly be witnessed outside of the United States.

COAL MINE MONOPOLY.—The *Bulletin* states that it has ample evidence of the operations of certain capitalists here to secure a monopoly of the coal mines of the Pacific Coast. The Mount Diablo, the Bellingham Bay and all but the chief coal mine at Coos Bay are now within the control of these parties. The paper gives items with regard to their failure to secure the last-named mine.

Mount Rainier Firing Up.

Many of our readers will remember that, in the graphic account published by us of the ascent of Mount Rainier, by Messrs. Stevens and Van Trump, in August last, it was stated that they slept near the summit on a sheltered spot which was warmed by the fires of a nearly extinct crater, and they saw steam issuing from the crevices in the rocks. However incredulous others may have been of the existence of smoldering fires in the mountain, these gentlemen saw enough to remove any doubt from their minds.

Since winter set in, with its rains on the plains and its snows on the mountains, people living within daily view of Mount Rainier have observed strange and unusual sights on its rugged sides. One day it is seen covered, apparently at great depth, with snow from the summit to the base; the next day not a vestige of snow is visible. And so it is alternately white and gray from day to day; while some persons allege that they can plainly see smoke and steam ascend from the mountain. None who have witnessed these sights doubt the existence of fires in the mountain, to the heat of which they attribute the rapid disappearance of the snows. In support of this belief it is further stated that the rivers and streams in the vicinity, the Puyallup among others, have for some weeks been much higher than usual.

From all the signs it would appear that old Rainier is firing up for a grand pyrotechnic display. In former years, at this season, the mountain was clad in snow from the foothills to the summit, without a rent appearing in the raiment for months together. Only in summer, under the rays of a warm sun, was the snow partially melted, exposing small portions of its naked sides to the beholder. Should the fires continue to increase in intensity, it cannot be long before they will break through the crust which now confines them, and issue forth in flames and ashes and molten lava. What a grand spectacle that will be! If this exhibition comes off according to promise, we shall have another attraction to add to the many which now inspire with awe and wonder the tourist who comes to see sights in Washington Territory.—*Olympia Tribune*.

July 4, 1876.

Hon. John Bigelow has written a letter with regard to taking steps for an appropriate celebration of the 100th anniversary of the Declaration of Independence. He proposes that preparations should be commenced at once, that we may be able to give an adequate expression of our patriotism. The celebration should be national and universal, and the participation of foreign countries might be invited to some extent. As a commencement he makes several suggestions: The completion of the Washington Monument, of the Capitol buildings, and, as far as possible, of projected railway, telegraphic and other public works throughout the country; the restoration of the gold standard of values; redemption of the national indebtedness; making geological surveys in states which yet lack them; taking an extra Federal census in 1875. These may or may not be associated with the celebration.

He also proposes for consideration several ways of celebrating the day: coining a complete set of gold or silver current coins with appropriate devices; a poem from an eminent poet; memorials from every art, showing the degree of excellence attained therein; inviting foreign nations to participate; an American Congress for settling many grave international questions; preparation of a series of histories by which to measure the product and progress of civilization in the U. S. for the expiring century; founding a national museum.

The suggestions are worthy of consideration. Some may appear at first a little visionary, but then there is no limit to possibilities, apparently, in our country. The idea is certainly excellent of commencing immediately to prepare for a proper celebration of the most memorable anniversary in our history.

CENTRAL CITY, Colorado, is taking measures for a water-supply. It is estimated that an adequate supply can be obtained at an expense of about \$3,000.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,
W. B. EWER, JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, Feb. 11, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Feb. 8, 1871.—Legal Tender buying @90; selling @90½. Gold in New York to-day 111½.

Table of Contents.

The Fulton Plow, Ill.; Palmer's Car Coupling, Ill.....	81
MECHANICAL PROGRESS.—Locomotive Boilers; Chrome Steel; Machine for Piercing Boiler Flues; Petroleum Fuel: Steam Stamps; Cable Screw Wire; Wood Engraving.....	82
SCIENTIFIC PROGRESS.—Solar Pyrometer; Itacumite; Solar Temperature; Eclipse Imitation Volcanoes.....	82
Notes on Stanislaus county; Bound East, Ill.; Filing Saws; Blue Lake Monster; Amalgamator, Coal in Nevada.....	83
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.....	84, 85
IN INDUSTRIAL MISCELLANY.—Reclaiming Alkaline Soils; New Silk Project; Pacific Coast Industry; Horse Harnessing Machine.....	86
Vaporization and Elastic Force of Steam, Ill.; Novelty Lantern, Ill.; Mt. Rainier Firing Up; July 4, 1876.....	87
Academy of Sciences; Wonderful Discoveries; Co-operative Gold Mine; Land Patent Decision; Appeal to Humanity.....	88
Sunset on the Coast; Work at the City Foundries; Electrical Machines.....	89
HOUSEHOLD READING.—How to Bone a Turkey; The Skin and its Functions, Ill; Domestic Receipts; Mechanical Hints; Life Thoughts; Etc.....	90
Hard Times and High Prices; Full List of Patents, Etc.....	92

ENCOURAGING.—The publishers of the SCIENTIFIC PRESS have been receiving most ample encouragement this year. Subscriptions have been more generally renewed than ever before, while new names have been added to our lists from various parts of the west and the east, and also from foreign countries. The conductors of journals, both on the Atlantic and the Pacific slopes, have given us the kindest and most flattering of notices, and from all sides we receive the most satisfactory proofs that the circulation and influence of our paper are ever extending. This is owing, we may be allowed to believe, to our efforts to make the Press a reliable paper, keeping pace with the progress of the times, containing the cream of what belongs in its scope, and ever striving for the best interests of its readers. Making a really good paper, we are more and more fully convinced, is the most profitable journalistic method. But our increasing success is also due partly, without doubt, to the increasing faith and interest in practical and legitimate mining, and to the general advancement of our mechanical industry. We therefore congratulate our readers in congratulating ourselves.

ACADEMY OF SCIENCES.—At the meeting on Monday, referred to elsewhere, a number of donations were made. Dr. Gibbons presented a fine specimen of petrified wood found on one of the Aleutian Islands. A large under-jaw of a sperm-whale was donated by J. C. Merrill & Co. Mr. Wackenreder gave a live specimen of *Filaria*, 2 feet long, found in a pipe connected with a well in solid rock, on the San Bruno road. E. Durand presented a specimen of cinnabar. The crystals presented a combination of the prism and rhombohedron not mentioned in Dana or Dufrenoy. On the piece were said to be specimens of metacinnabarite imperfectly crystallized. If this is the case, it disproves the assertion of Dr. Moore (who examined and named the mineral) that it is always amorphous.

Since the above was written, Mr. Durand has shown us specimens of cinnabar, the crystals being long prisms terminated by low rhombohedrons. With them (underneath) occur indistinctly crystallized masses of what is said to be black cinnabar or metacinnabarite. The occurrence is very interesting.

Academy of Sciences.

This institution has been in existence since the year 1853. It was founded by a few gentlemen who were interested in the cause of science, and it has continued to exist, although up to about 1865 the number of members was limited, and to labor quietly and patiently in the collection and comparison of facts in the natural history of the coast. Of late years, more interest has been taken in its proceedings, the collections have been increased, numbers of eminent men have contributed to its proceedings, more members have been added; and now it seeks to get the means for erecting a building of its own, in order to have the necessary room for its large cabinet of national production.

The plans for such a building are modest and do not involve the necessity of a large outlay. Nevertheless, it is necessary for the Academy to appeal to the public for assistance. It proposes to erect a building so located that it could derive some revenue from rent of stores, with ample room for the society in the upper stories, with a lecture room, library and reading room. Such a building would draw additional members, and would be an addition to our city.

The appeal to the public is proper, for the existence of such an institution is an advantage to the community. It adds to our general reputation, and certainly it is important to a people that they should stand well in the estimation of others. It adds to the welfare of the people in a "practical" manner; no one can deny that the Smithsonian Institute, our National Academy, is a direct benefit to the United States. Had we no scientific institutions and academies we should be far back in the dark ages.

To conform with the legal requirements, the academy will incorporate; and for this purpose trustees were elected last Monday. The gentlemen elected were F. L. A. Pioche, Samuel Hubbard, Dr. C. M. Hitchcock, Elisha Brooks, Gen. J. Hewston, Dr. J. Blake and H. P. Carleton. In a short time a plan will be presented by these gentlemen to the public, with an appeal for financial aid. We hope that their request may be promptly answered.

SMELTING WORKS AT EUREKA, NEVADA.—The *Sentinel* gives a description of the works of Ogden, Dunne & Co. The smelting furnace has a capacity of 13 to 14 tons daily. The capacity of the refinery is six tons daily, and the usual run is 30 to 40 tons weekly. The litharge produced (from 40 to 50 per cent.) contains about \$1.50 per ton in silver and is mostly shipped East. The mechanical arrangements are described as excellent. The whole cost of the works exceeds \$40,000, all of which has been paid. Another furnace (we hear elsewhere that it is to be substantially the same as that illustrated in the Press of January 14th) is soon to be built. C. Liebenau is the metallurgist of the works.

LAND PATENT DECISION.—In the case of an application for a patent for 160 acres of surveyed placer land in Montana, the Land Commissioner has decided that 10-acre lots on surveyed land in mining districts are legal subdivisions, and that such legal subdivisions may be either 10+10 or 5+20 chains, as desired, only the sides cannot run at an angle with the lines of the regular surveys. The commissioner remarks that "to require mining claimants in cases like the present to postpone making applications for patents until adjoining miners are willing to unite in making a joint entry of their respective claims, or to include in their application large areas of worthless land to be paid for at double the minimum price of good agricultural lands would not only be a hardship upon the miners, but inconsistent with the spirit and intention of the statute."

Wonderful Discoveries.

Every now and then, some enterprising, but uninformed individual, sees a mineral substance which he does not know, and immediately proceeds to guess what it is, and to publish his guess as a fact. In this way, we often hear of the existence of huge deposits of valuable minerals, which are reported in the papers West and East, but which prove, on examination, to be entirely different from what they were first guessed to be.

Borax is all the rage just now. We have seen the existence of acres of borax, many feet deep, asserted in the journals, but on how good authority we do not know. Consequently, we are unable to deny the assertions; but still we doubt. From the Owen's River locality, mentioned in another column, a lot of borax has been sent to this city. Mr. Henry G. Hanks has examined quite a large amount, which unfortunately contains not a trace of boracic acid, but is simply hydrous sulphate of soda. Now we cannot know but that the other fields of borax may prove equally deficient in this most essential component.

Tons of sulphate of soda have been sent to San Francisco, under the impression that they contained something more valuable; which they occasionally do in small amounts. We often discover, in this way, interesting specimens, but the senders probably feel hardly satisfied by the result. A little more mineralogical knowledge would save them much expense.

Borax is found in a number of places on our coast, but nowhere do we know of deposits so extensive as those at Borax Lake. Boracic acid exists in other minerals and in varying quantities. Armed with a lamp or candle, a blow-pipe and a piece of platinum wire, the prospector can easily make a preliminary examination of his suspected borax. The mineral, if really borax, will first puff up and then easily fuse to a transparent bead before the blow-pipe. This simple and easy examination will suffice to discriminate borax from many other minerals. Mr. Hanks recommends as the best test for boracic acid in minerals or compounds containing it, to powder the substance, put in a small evaporating dish, add sufficient sulphuric acid to make a pasty mass, then add alcohol, and heat with a spirit lamp. When heated nearly to boiling, remove the lamp and ignite the alcohol. The flame will be principally yellow (the sodium flame) but by blowing on it so as to agitate it violently (without extinguishing), a green flame will show the presence of the boracic acid.

AN APPEAL TO HUMANITY.—The S. F. Chamber of Commerce appeals to our California public to contribute towards the alleviation of the terrible sufferings of the French people. All political questions are laid aside, all opinions as to which nation is right in the present contest. The people are starving, dying,—that is the only point considered. Other states are contributing. Shall California refuse? Donations may be sent to C. Adolphe Low, 208 California street; J. C. Merrill, 204 California street; C. S. Hopkins, 318 California street; Jacob Deeth, 203 Sacramento street; or Albert Dibble, 38 California street, San Francisco.

COTTON LANDS WANTED.—A gentleman from the Mississippi is in correspondence with Maj. Means, of Stockton, with regard to securing a large tract of land in this state, with the view of transplanting thither a colony of cotton planters; 30,000 or 40,000 acres are wanted.

LARGE YIELD OF CORN.—A farmer on the Bolsas Rancho, in the Stearns Grant, near Los Angeles, is said to have raised the past season 700 bushels of corn on five acres of land, or at the rate of 140 bushels to the acre!

A Co-operative Gold Mine.

The Press has previously advocated co-operation among miners. In Victoria, Australia, as we learn from R. Brough Smyth's valuable book, a number of co-operative companies exist. A detailed account of the management and operation of one of these companies was given some time ago in the London *Gentleman's Magazine*, which we copy (in a condensed form) as worth reading by many of our subscribers.

On the Great Redan Reef of the gold fields of Ballarat, a company was established called "The Great Extended." It was first formed on the 10th of March, 1857, by eighty men on the co-operative principle, all being working shareholders and all sharing equally. Three officers were selected, namely, an underground manager, a secretary, and a treasurer. The miners were divided into three gangs, each to work eight hours, and with this arrangement they work day and night all the year round. They commenced sinking a shaft seven feet six inches long, by only three feet, three inches wide, being exactly the dimensions of an ordinary grave, the difference only being in the extraordinary depth. They were well aware at the outset that they might have to sink the shaft between three and four hundred feet, and that in doing this they would have to pass through several layers of rock. The reef on which they were sinking rises and falls like hills and valleys, and the gold, they knew, would have been lodged by its own weight in the very center of each of these valleys; which center, or lowest dip of the reef, is termed, with modest impropriety the "gutter." In bygone ages this gutter was a creek or water-channel, and it winds along underground just as a creek does on the surface. Now, although the miners knew that this gutter containing the "lead" or track of the gold ran along in various places below, they could not know where it was, nor at what depth; their minds were therefore made up to sink to the bottom of the reef and then commence "driving" (that is, tunneling) in various directions till they found it. But whether it was by singular good fortune, or that these eighty practical miners laid all their hard heads together, sitting in council before they began to dig their profound grave, yet it so occurred that they descended right upon the golden gutter. Thus they obtained a rich mass of gold immediately, and without driving an inch to find it.—[Smyth states that they bottomed within 15 feet of it.—ED. PRESS.]

The shaft of the Great Extended cost nearly \$700 per foot. The depth was between three and four hundred feet, in the course of which they had to pass through four layers of hard basaltic rock, rendering blasting necessary the whole time. These four layers amounted together to no less than two hundred and thirty feet of solid rock. The shaft was slabbled, that is, lined with massive timber planks, as they descended, and is thus lined from top to bottom. The sinking of the shaft, including the slabbing, occupied these eighty working shareholders, day and night, three years and four months, during which they never touched a penny. They had, moreover, to find themselves in food and clothing. An example of mutual good faith and honest co-operation, as of Anglo-Saxon perseverance, which seems to me well worth recording.

The cost of the undertaking may be thus roughly set down. Each shareholder contributed \$392.50, amounting to \$31,400. The Union Bank of Ballarat advanced them \$10,000. Eighty men's labor for 169 weeks, valued at \$15 per week per man, making \$202,800. The shaft, when completed, thus cost \$244,200 before a shilling of return was realized. Besides this, we are to bear in mind that they might have to commence driving in various directions had they not been so fortunate as to have alighted on the gutter.

The reward of all this persevering labor and expense soon came. In the first twenty-one days after arriving at the gutter the "wash-dirt" yielded eight hundred and eighty ounces of gold—value, \$17,100. On the 23d of June, 1860, the first dividend of \$220 per share was paid. Up to March, 1861, the mine had yielded over \$180,000, and there is every sign of the yield continuing the same for years.

HAVANA CIGARS.—We see it stated that there are eleven thousand factories in the United States, which make "pure Havana" cigars.

Sunset on the Coast.

We reproduce this week a fine marine piece by one of our most celebrated American marine painters, Mr. De Haas, of New York. The original painting has been chromo-lithographed by L. Prang, and the engraving is copied from the chromo.

We proposed, in a former article, to say a few words concerning chromos. As we owe the extensive application of this art to Mr. Prang, it may be of interest here to give a few facts in the history of this gentleman. These may be considered correct, as they are taken from his own paper.

Mr. Prang is by birth a German, and received in his native country and other continental States, as well as in England, a thoroughly practical education in everything pertaining to the application of chemistry to the useful arts. Becoming embroiled with the Government of Prussia in consequence of the active part which he felt it his duty to take in the revolutionary movements of 1848, he determined to emigrate to the United States, and, soon after his arrival here, took up his residence in Boston, where he has continued to live ever since. He has employed himself chiefly in wood engraving and lithography. At the beginning of the war, his local business as a commercial lithographer being entirely ruined, he commenced the publication of military maps, card portraits of the Federal Generals, album pictures and illuminated texts; and his immediate success in these ventures led him to attempt chromo, the monopoly of which hitherto had been enjoyed by Enrope. His first chromos were not successful, but the publication of a group of chickens, after Tait, won an instant popularity, not only for the picture itself, but for the new art. Since that date he has issued, in regular and quick succession, a series of chromos after American and foreign artists, but chiefly after native painters, which have been received with almost unvarying favor, and have won for his house a popularity that is seldom attained excepting after long years of honest work, great expense and untiring energy.

His art publishing house, the first building ever erected in the world for the sole purpose of issuing art publications for the million, was first occupied in October, 1858, and in it, at present, one hundred men and women are constantly employed. It is situated in what was once Roxbury, a city which has been annexed to Boston and now is called Boston Highlands.

Mr. Prang has been so successful, that he has found it necessary to establish agencies in every large city in the Union. The agents here are Messrs. Snow & Roos, who have a choice collection of chromos as well as of engravings and paintings. They are to be found at No. 21 Kearny street.

MR. JULIUS A. PALMER says that the number of Chinese in this country does not exceed 100,000.

Work at the City Foundries.

This is usually the dull season of the year for the foundries, yet we find that most of the works are kept very busy, this year, some having fully as much to do as they are capable of doing.

THE FULTON FOUNDRY is engaged making shafting (about 300 feet), pulleys etc., for the Oakland Cotton Mills. A saw-mill is being built for erection on Russian River. Work is still being done for Severance and Holt's Diamond Drilling Machines. For the Imperishable Block Pavement Company, a 10x20 inch engine, with boilers, etc., complete, is being constructed. The works are making machinery for the California Sugar Refinery, among which are two large 7-foot pans,—"Blow Ups". For S. M. and A. Duncan, of Russian River, a small, 10-ton locomotive is being built, together with cars, for the transportation of lumber. Cars are also being built for the Coos Bay Coal Company, and there is a large amount of miscellaneous work in hand.

THE ETNA WORKS are making propellers for the steamers *Kitty* and *Water Witch*, and are repairing the machinery of the *Senator*.

the Vulcan Works are making for this firm thirty-two double glue-pots of the largest size.

THE PACIFIC IRON WORKS are engaged on the castings for smelting and calcining furnaces for Ogden, Dunn & Co., at Eureka, Nevada; also on a considerable amount of machinery for the Nevada Land and Mining Company, at Reno. For the Pocahontas mine, El Dorado County, pumping and hoisting machinery are being built. They are putting in a new shaft for, and overhauling generally, the steamer *Nevada*, which is to be put on the new Australian line. They have a contract for putting up the city gas works at Woodland, Yolo County, for the Pneumatic Gas Company, and have other jobs which keep them very busy.

THE MINERS' FOUNDRY is at work on two pony-gang saws for a saw mill on Puget Sound. Each contains 32 saws, which are run by 12x18 inch direct-acting steam engines, placed under the saws. The massive frames are of iron, and the mill men assert that these saws effect a saving of twenty per cent in the lumber over the common circular saws. For another mill on the Sound they are constructing a heavy steam engine,

Electrical Machines.

Pursuant to an invitation from the superintendent of the Electrical Construction and Maintenance Company, a number of persons met at the office of the Western Union Telegraph Company to witness the working of instruments for transmitting messages and exploding blasts. These have just been introduced on the coast.

Electric Exploder for Mines.

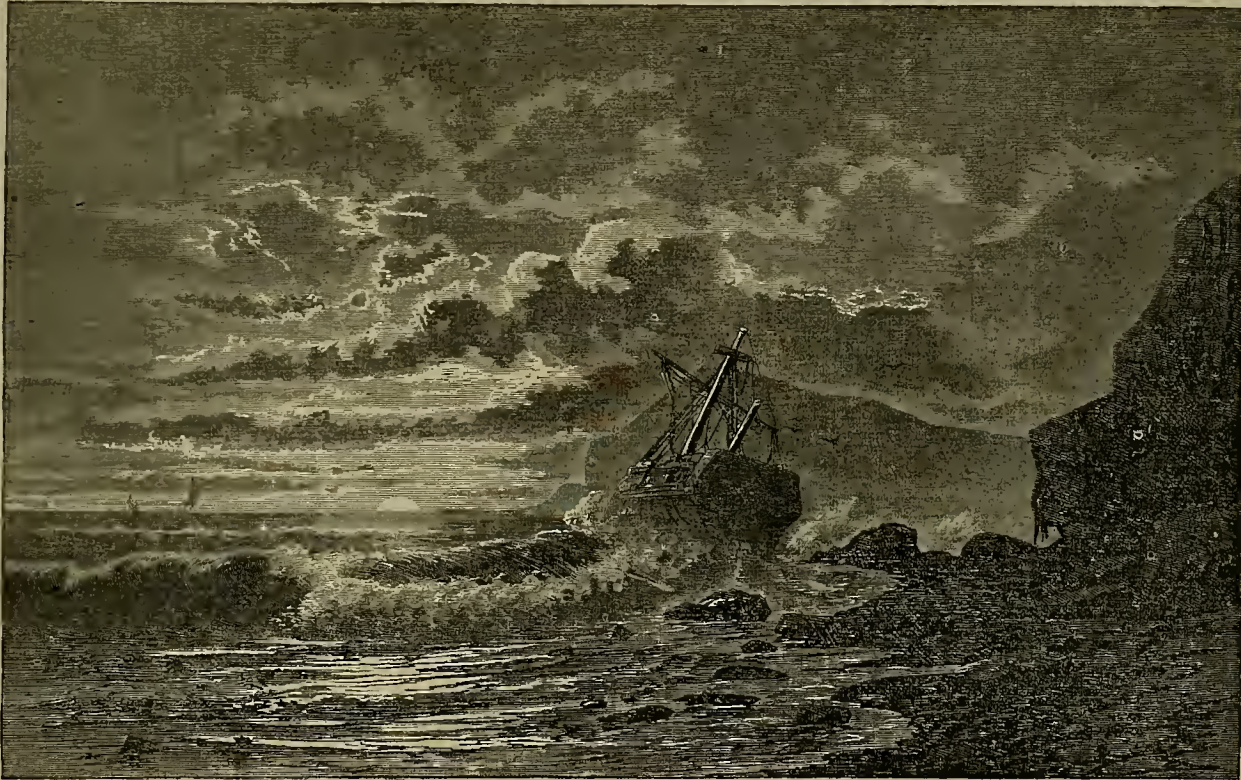
One of these instruments was a frictional electric machine for exploding blasts. The machinery is enclosed in a circular case of vulcanized rubber, 12 inches in diameter and 3 inches through, with plates of iron on each side, to strengthen and protect the works, the whole fitting in a wooden box, and weighing 15 to 20 pounds. The rubber case renders it independent of the atmosphere so that it can be used in rainy weather or damp localities, where frictional machines are apt to be useless. The apparatus is so constructed, we are told, as to give an intense charge of electricity and to be free from the trouble of leakage or liability to get out of order. In the experiments, 40 cartridges were exploded at one time, showing the power of the machine. Another important point is the price, which is \$150. The intensity of

the electrical stream generated, its apparent protection from the atmospheric influences, its durability, lightness, ease of being transported and ease of handling, would recommend the apparatus to miners. Mr. Fields, one of the very first electricians on the coast and a gentleman who has had more experience than any other person here, in blasting by electricity, speaks highly of it, and his opinion is worth much. If our readers will read the article on "Gunpowder and Dynamite Blasting" in the SCIENTIFIC PRESS of Oct. 22d, 1870, they will find some valuable remarks on blasting by electricity and on the gain over the common methods where an ordinary gunpow-

der fuse is used. Experiments near Vienna, Austria, give this gain as about 50 per cent.

Printing Telegraph Machine.

The other instrument was Phelps Electric Printing Telegraph machine, which has many valuable points. It is intended for private use and seems to be an improvement over other machines of the kind with which we are acquainted. A description would require too much space to be given here. It not only prints the message at the receiving, but also at the sending station, so that the sender sees just what he is telegraphing and knows whether or not he has made any mistake. It does not require the presence of an operator to receive, but the message is printed and remains until the receiver may choose to read it. It is said to be exceedingly durable, easy to manage, requiring no special knowledge and but a comparatively small amount of experience to operate. It was patented by Mr. Phelps of the W. U. Tel. Co., of New York, and is used in that city by the Stock Board for transmitting messages to different brokers' offices, and by a number of firms in connection with their manufacturing establishments at a distance from their offices. The cost of two machines, one at each end of the line, is about \$600 where both receive and send; or about \$450 where both take but only one sends. These are not the exact, but only approximate, figures.



SUNSET ON THE COAST. BY DE HAAS.

They are fitting up complete the road wagon and steam plows according to the designs of Mr. Oliver Hyde, of Oakland, of which we have previously made mention. They are making a lot of Varney pans and settlers for Mexico, machinery for a new brewery in this city and castings for the State Capitol, at Sacramento. They are busy on repairs for the Mission Woolen Mills and also on iron house-fronts, of which last they always have several orders on hand. They are building a Johnson Hoist and a jig saw for the Mission Woolen Mills etc., etc.

THE VULCAN WORKS are building a very strong, substantial, 16x36 inch engine for Selby's lead works, with two tubular boilers, 50 in. x 15 feet. The engine is very heavy, the fly wheel weighing six tons. They are at work on a 5-stamp quartz mill, with steam engine, boiler, hoisting works, etc., complete, for Mexico. They are making the machinery for the new "Linden" flouring mills, near Stockton; also two 6-foot retorts for the Pacific Wood Preserving Company. The extent of the furniture business of Mr. N. P. Cole & Co., may be judged of to some degree from the fact that

with 26-inch bore, which is perhaps the heaviest engine ever built on the coast. The State Capitol castings and other work keep them at their very busiest.

THE RISDON IRON WORKS are kept busy on various jobs. The hydraulic pipe manufactured by them, of which we have previously spoken, is in successful operation and they have orders for similar pipe for the Quail Hill Mining Company. They are engaged in what is a new feature in our California manufactures,—constructing iron decks for steamers. For the *Mohonga* they are making one of these, and, indeed, have the whole contract for the wood and iron work, which is of a nature calculated to make the vessel a first class steamer. Besides, they have on hand a variety of other work, keeping a large number of men busily employed.

EARTHQUAKE.—It appears that we had an earthquake here last Monday, at 7.17 A. M. Duration, 2 seconds; shocks, 2; direction, north-east and south-west. It was perceived by only a few persons. Shocks, at the same time, were reported at San Jose and Santa Cruz.

HOUSEHOLD READING.

How to Bone a Turkey.

• Clean the turkey; remove the intestines; cut off the first joints of the legs; cut down the backbone; very carefully raise the meat from the backbone on each side; unjoint the wings, leaving the small part of the wing bone; raise the meat carefully from the breast, using a sharp knife with a narrow blade. The meat being now detached from the bones, and those unjointed, draw out the frame; only the merrythought will remain, which can be easily cut out. Break up the bones; put them in a stew-pan; cover them with cold water, and stew while the turkey is being stuffed with a rich force-meat. First sew up the slit and any holes that may have been accidentally made, making the stitches on the inner side. The force-meat may be of well-seasoned sausage meat, or veal, minced fine, and seasoned with spices to taste, or with mace only, or use sweet herbs. After it is stuffed, so as to look as before the bones were removed, put it in a large stew-pan, that will just hold it without cramping; strain over the gravy from the bones. If this does not cover the fowl, add warm water; add any vegetable or sweet herbs liked, several slices of cold boiled bacon, and a few slices of veal. It will require from an hour to two hours gentle stewing. Let it cool in the liquor; take up the fowl; scrape off the gravy; melt and strain the gravy. Season it to taste, if not already sufficiently seasoned; boil it down to a jelly. Strain over the fowl, or serve around it, upon the dish.

VEGETABLES.—Vegetables intended for dinner should be gathered early in the morning. A few only can be kept twelve hours without detriment. "When freshly gathered they are plump and firm, and have a fragrant freshness no art can give them again when they have lost it by long keeping, though it will refresh them a little to put them into cold water before cooking." A little soda in the water they are cooked in will help to preserve the color of those that are green. They lose their good appearance and flavor if cooked too long, and are indigestible if not cooked enough; close attention and good judgment are necessary to know the proper time to take them up. Always drain the water from them well before sending to table; have the dishes hot upon which they are placed, and never send them to table until the meats are served; when sent too soon, and often uncovered, they become chilled and unfit for use. Always put vegetables to boil in hot water.

VALUABLE RECIPES.—The Boston Journal of Chemistry gives the following recipes for the benefit of those—and they are legion—who are troubled with harassing and annoying coughs that frequently accompany many acute diseases, and arising from nervous irritation of the larynx, pharynx, palate or other parts of the throat; Sulph. Morphia.....gr. j.
Dil. Sulph. Acid.....dr. j.
Simple Syrup.....oz. ij.
Mix. Half a teaspoonful to be given upon the tongue, and swallowed slowly. The persistent hackings of bronchial difficulties, and even of consumption, are often speedily relieved by it.

An excellent cough mixture, for constant use in the office or family is this:

Syrup Tolu.....oz. j.
Syrup Peru.....oz. j.
Syrup Sanguinaria.....oz. j.
Syrup Lobelia.....oz. j.
Tr. Wintergreen.....dr. j.

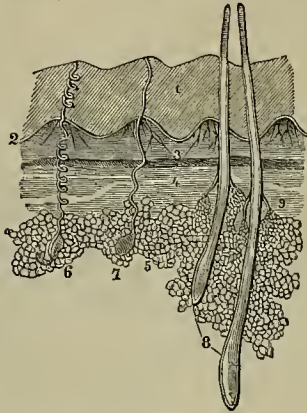
Dose,—half a teaspoonful three or four times daily, or whenever indicated. Cut these recipes out and preserve them. When needed present them to a druggist to be put up.

TO MAKE IODINE COLORLESS.—Tincture of iodine, so extensively used as a local application for swellings, etc., may be rendered colorless, without its strength being impaired, by adding to it a little hyposulphite of soda. This is a most desirable discovery since it is often necessary, apply it to the face, neck and hands, where the ordinary brown preparation would make the patient present an uninvitable appearance.

HINTS TO HOUSEKEEPERS.—Rise early in the morning, or you will not get a fair start with your business. Rise earlier on Sunday morning than on any other day, that the children may be at Sunday-school in time; and domestics have time to arrange their necessary business as to be able to attend divine service.

The Skin and its Functions.

In concluding the article commenced last week, on the the functions of the skin, and referring to the illustration here again given, 6 and 7 are the perspiratory glands and ducts, which are so exceedingly small that, according to calculations of Wilson, the standard authority on the anatomy of the skin, there are twenty-eight hundred to every square inch of the body. The number of square inches in a man of ordinary stature is about twenty-five hundred, so that the number of glands and tubes would be about seven millions, and the length of tubing through the skin about twenty-eight miles. By this delicate and complicated apparatus are performed some of the most important functions of the system. The amount of liquid carried off through this apparatus, in insensible perspiration, and the effects of it in removing the impuri-



1. Cuticle, or Scarf-skin.
2. Rete Mucosum, or Mucous Web.
3. Corpus Papillae.
4. True Skin.
5. Cellular Membrane, or Fat Cells.
- 6 and 7. Perspiration, Glands and Ducts.
8. Roots of Hairs.
9. Oil Follicles.

ties from the blood and in regulating the temperature, is very important. It is estimated to be, on an average, eleven grains every minute. The amount of course varies very greatly according to the dryness of the atmosphere, the degree of activity of the circulation, the temperature to which the body is exposed, the amount of liquids previously taken, &c.

Besides this function of eliminating perspiration, and with it the impurities of the blood, the skin secretes an oil, which lubricates the hair, &c., as seen in the little glands at 9, and also secretes in different parts of the body odor peculiar to each individual.

The distinctive odor is not in many instances sufficiently strong to be recognized by human olfactories; but the dog, whose olfactories are much more acute, can recognize his master and follow him through a crowded city, by the effluvia which is transmitted through the leather of his boot to the sidewalk,—a fact that would seem incredible, but is nevertheless well known.

By the aid of the cut and description, we shall be able to understand the importance of friction and ablation. The scarf-skin is made up of laminae, which are constantly falling off to make room for new laminae underneath. They are placed obliquely on each other, like shingles on a roof, and serve as valves to prevent the access of air to the sensitive papillae and skin underneath, and when contracted by cold, or when the interstices are filled with concreted and dried effete matters from within; or dust and dirt from without, the mouths of the delicate ducts through which the perspiration is evolved are filled, and thus the important process of perspiration described is obstructed.

To keep the skin in good condition, friction and bathing are indispensable. A crash towel and flesh brush will serve as instruments for friction. Let any one who has never enjoyed the luxurious sensation of a thorough friction of every part of the skin, try it some night, when he comes home tired and dusty, and the pleasurable glow of health and the refreshing sleep that will follow, will make him wonder that he has so long neglected a duty, and one that so manifestly adds to his comfort. Everybody carries his horse, and knows that neither oats, nor corn, nor hay, nor all together will keep him in good condition without that operation. Can he give a good reason why he should not curry himself?

Domestic Receipts.

VOLTAIRE'S RECIPE FOR DYSPESIA.—Take no other nourishment than the yolk of eggs, beat up with the flour of potatoes and water.

SIR JOHN SINCLAIR'S RECIPE FOR DYSPESIA.—Beat an egg in a bowl, then add six table spoonfuls of cold water mixing the whole well together; then add two table spoonfuls of the farina of potatoes, to be mixed thoroughly with the liquor in the bowl; then pour in as much boiling water as will convert the whole into a jelly, and mix well. It may be taken either alone or with the addition of a little milk and moist good, pulverized sugar, not only for breakfast, but, in cases of great stomach debility or in consumptive disorders at the other meals. The dish is light, easily digested, extremely wholesome and nourishing. Bread or biscuit can be taken with it, as the stomach gets stronger. Potato starch and farina are one and the same.

CLEANSING VARNISHED PAINT.—In cleansing paint which has been varnished, there is nothing better than weak tea. All the tea leaves from several drawings should be saved and boiled over early in the morning of the paint-cleansing day. If boiled in an old tin pail or pan, the tea can easily be strained off for use. Wet a flannel in it and wipe off the oak-grained paint and you will be surprised at its brightness. No soap is needed, no milk; the tea is the most capital detergent ever invented. Wipe the paint dry with a soft cloth; you will find that very little elbow grease is needful. White varnished paint is cleansed as rapidly with it as the grained.

TO PREVENT BLISTERS.—Tannic acid can be obtained cheaply of any apothecary and is said to be an admirable remedy for perspiration of the feet and against blisters. It transforms the skin into leather and still permits perspiration to pass, but absorbs the ammonia and other bad odor of the feet. The skin being rendered tough by the tannin there is less danger of the formation of blisters.

RICE FLOUR CEMENT.—Mix the flour (as much as is needed) with cold water; pour into boiling water; let it simmer until a transparent paste is formed. When cold use it.

Mechanical Hints.

CEMENT FOR FASTENING INSTRUMENTS IN HANDLES.—A material for fastening knives or forks into their handles, when they have become loosened by use, is a much-needed article. The best cement for this purpose consists of one pound of colophony (purchasable at the druggists) and eight ounces of sulphur, which are to be melted together and either kept in bars or reduced to powder. One part of the powder is to be mixed with half a quart of iron filings, fine sand, or brick dust, and the cavity of the handle is then to be filled with this mixture. The stem of the knife or fork is then to be heated and inserted into the cavity; and when cold it will be found fixed in its place with great tenacity.

BLACK COATING FOR ZINC ORNAMENTS.—Dingler's Polytechnic Journal states that M. Neumann has instituted a series of experiments to point out the best materials to produce upon statuary or ornamental subjects made of zinc a pleasing, blackish coating, without impairing the effect of the natural color of the metal, as would be the case where an oil paint or varnish is used. The best results were obtained when nitrate of protoxide of manganese was employed. This salt, on being heated, is decomposed, yielding black peroxide of manganese, and the degree of heat required is not so high as to affect the surface of the zinc. The best solution for this purpose is fifty-four grammes of the salt in one litre of water.

TO TAKE BRUISES OUT OF FURNITURE.—Wet the part with warm water; double a piece of brown paper five or six times, soak it in the warm water and lay it on the place; apply on that a warm, but not hot flat iron till the moisture is evaporated. If the bruise be not gone, repeat the process. After two or three applications, the dent or bruise will be raised to the surface. If the bruise be small merely soak it with warm water, and hold a red-hot iron near the surface, keeping the surface continually wet—the bruise will soon disappear.

TO CLEAN AND RESTORE THE ELASTICITY OF CANE CHAIR BOTTOMS, COUCHES, ETC.—Turn up the chair bottom, and with hot water and a sponge wash the cane-work, so that it may be thoroughly soaked. Should it be dirty, use a little soap. Let it dry in the air, and it will be as tight and firm as when new, provided the cane be not broken.

Life Thoughts.

THE greatest truths are the simplest, and so are the greatest men.

THE body—that is dust; the soul, 'tis a bud of eternity.

HE who buys too many superfluities may be obliged to sell his necessities.

TOWERS are measured by their shadows, and great men by their calumniators.

WORK is the weapon of honor, and he who lacks the weapon will never triumph.

LET thy actions prove that thou art indeed a man in the highest and holiest sense of the exalted name.

SOUND ADVICE.—Never owe any man more than you are able to pay, and allow no man to owe you more than you are able to lose.

MANY person who appear to repent, are like sailors, who throw their goods overboard in a storm, and wish for them in a calm.

NECESSITY is the mother of invention and encouragement the nurse of it; what is brought forth by the one, should be propagated by the other.

TRUE piety is not a morose, but a cheerful thing; whilst it makes me joyful it delivers me from frivolity, yet it causes me to be pleasant and glad.

IF you wish to know a man's character, wait till some misfortune or disgrace happens to him; and you will soon see all his greatness or all his weakness.

A LADY once asked a minister whether a person might not be fond of dress and ornaments without being proud. The minister replied: "When you see the fox's tail peeping out of the hole, you may be sure the fox is within."

Whining.

There is a class of persons in this world, by no means small, whose prominent peculiarity is whining. They whine because they are poor, or if rich, because they have no health to enjoy their riches, they whine because it is too shiny; they whine because it is too rainy; they whine because they have "no luck" and others' prosperity exceeds theirs; they whine because some friends have died and they are still living; they whine because they have aches and pains, and have aches and pains because they whine, and they whine; and they whine no one can tell why. Now, we would like to say a word to these whining persons:

First. Stop whining that is no use, this everlasting complaining, fretting, scolding, fault-finding and whining. Why you are the most deluded set of creatures that ever lived. Do you not know that it is a well settled principle of physiology and common sense, that these habits are more exhaustive of nervous vitality than almost any other violation of physiological law? And do you know that life is pretty much as you take it and make it? You can make it bright, sunshiny, or you can make it dark, shadowy. This life is meant only to be disciplinary—to fit us for a higher and purer state of being. Then stop whining and fretting, and "go on your way rejoicing."

THE HUMAN HEART is like an artist's studio. You can tell what the artist is doing, not so much by his completed pictures, for they are mostly scattered at once, but by the half-finished sketches and designs which are hanging on his wall. And so you can tell the course of a man's life, not so much by his well-defined purposes, as by the half-formed plans—the faint day-dreams which are hung in the chambers of his heart.

LAZINESS grows on people; it begins in cobwebs, and ends in iron chains. The more business a man has, the more he is able to do; for he learns to save his time.

THE looking forward to enjoyment don't pay. From what I know of it, I would as soon chase butterflies for a living or bottle moonshine for a cloudy night. The only way to be happy is to take the drops of happiness as God gives them to us every day of our lives.

DARK HOURS.—To every man there are many, many dark hours, when he feels inclined to abandon his best enterprises,—when his heart's dearest hopes appear delusive,—when he feels unequal to his burdens,—when all his aspirations seem worthless. Let no one think he alone has dark hours. They are the common lot of humanity. They are the touch-stones to try whether we are current coin or not.

Eastern Advertisements.

EVERETT HOUSE,

Cor. Clark & Van Buren Streets,

CHICAGO.

This Hotel is centrally located,

Only Three Minutes walk from the

Court House, Post Office, and various places of amusement.

The Chicago, Rock Island and Pacific,

and the Michigan Southern Rail

Road Passenger Depots,

are within one block. The house is NEATLY AND ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City,

with the assurance of a hospitable greeting, and the best possible treatment.

TERMS--\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors.

2v22-1elminis



BABCOCK

FIRE

EXTINGUISHER.

Over 300 Actual Fires put out with it. More than \$1,000,000.00 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Available for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record." **F. W. FARWELL, Sec'y.** 3v22-3ms 122 Washington st., Chicago.



LEONARD'S

Patent Vapor Jet Burner and

Hand Lamps.

Also, Portable Gas Burners and

FIXTURES.

County and State Rights for sale.

Send for Circulars.

Manufactured and for sale by

D. LEONARD & CO.,

109 Calhoun Place, Chicago, Illinois.

3v22-3ms



COUNCIL BLUFFS

MINING MACHINERY

BOILERS

IRON WORKS

SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,

costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills, with all late

Improvements.

Send for prices and information. Address

C. F. HENDRIE, Prest, R J. CORY, Secy & Treas.

1v22-3m4es Council Bluffs Iowa.


[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Successors to

Wm. J. Young & Co., Wm. J. Young & Son,

Wm. J. Young.



MATHEMATICAL

AND

ENGINEERING

INSTRUMENT MANUFACTURERS

At their old location

No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand.


Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burts Solar Compass.

4v-22

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

BET. MONTGOMERY AND KEARNY, SAN FRANCISCO.



This College is now entering upon its sixth year, and is acknowledged to be the most thorough and practical Business Training School on the Pacific Coast.

Book-keeping, Penmanship, Commercial Arithmetic, Business Correspondence, Commercial Law, Telegraphing, Business Practice, Importing and Jobbing, Commission, Banking, Railroad, Political Economy, Orthography, Customs of Trade etc.,

thoroughly taught and illustrated. This is the MODEL TRAINING SCHOOL FOR BUSINESS on this coast, having the greatest corps of Professors and Teachers, and the greatest number of students in attendance of any in situation of the kind on the Pacific Coast.

THE PENMANSHIP DEPARTMENT,

of this Institution has a wide reputation for its completeness and thoroughness of instruction. Teachers of Penmanship can here perfect themselves for the most artistic execution of penmanship of all kinds.

Young men flock to this Institution from all parts of the Pacific States and Territories, British Columbia, Mexico, the Sandwich Islands and South America.

MR. M. K. LAUDEN, the founder of Business Colleges on this coast, gives his whole attention to this School—the Sacramento College having been consolidated with this, he is now prepared to make this the

Great Practical Business Training School.

For further information, please call at the College office, or address, for College Paper, Circulars, etc.

M. K. LAUDEN, President,

San Francisco, CAL.

Business Cards.

A NEW PATENT.



If you want a superior set of **TEETH** on Gold, Rose-Pearl, or Pyroloxline, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 509 MONTGOMERY STREET. 5v20-3m

JOHN ROAOH, Optician,

Has removed from 322 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted

22v17-3m

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.



Farmers and Mechanics

BANK OF SAVINGS,

No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

THE EYE! THE EAR!

DR. D. E. DUDLEY,

Surgeon, Oculist and Aurist,

Has removed to his new rooms, 24 Post street between Montgomery and Kearney.

3v22-3ms

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 31 : 317, 319 and 321

PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v23m

Trades and Manufactures.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v19

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16r

SAN FRANCISCO

CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,

611 and 613 Front street.

26

L. SCHUMANN,

PIONEER

Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET.

Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

GEO. W. SMILEY,

24v21-3m 424 Montgomery st., San Francisco.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 5v20-1y16p1

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v11r SAN FRANCISCO

Travelers' Guide.

Central Pacific Railroad.

Passenger except'd	Express Train Daily.	JAN. 22, 1871.	Express Train Daily.	Passenger except'd
4:00 P.M.	8:00 A.M.	San Francisco.	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.	5:12 P.M.	11:58 P.M.
7:58 P.M.	12:10 P.M.	Stockton.	5:40 P.M.	
9:35 P.M.	2:10 P.M.	Sacramento.	11:1 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.	9:10 A.M.	
	8:00 P.M.	Sacramento.	4:20 A.M.	
	2:20 P.M.	Sacramento.	11:45 A.M.	
	5:25 P.M.	Colfax.	8:45 A.M.	
	1:15 A.M.	Reno.	1:00 A.M.	
	9:10 A.M.	Winnemucca.	4:05 A.M.	
	12:00 M.	Barstow Mountain.	1:25 P.M.	
	3:10 P.M.	Carlin.	10:15 P.M.	
	4:40 P.M.	Elko.	8:45 A.M.	
	1:25 A.M.	Kelton.	10:10 A.M.	
	6:10 A.M.	Orden.	5:00 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6:30, 8:00, 9:10, D 10:20 and D 11:10, a. m. 12:00, 1:50, D 3:00, 4:00, 5:15 6:45 and E 11:30 p. m.

LEAVE BROOKLYN, B 5:15, B 6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40 4:55 and 6:25 p. m.

LEAVE OAKLAND, B 5:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and 11:30 a. m., 1:40, 2:50, 3:50, 5:05 and 6:35 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:30, E 9:00, BC 9:30 and EC 11:30 a. m., 1:30, 4:00 and 5:30 p. m.


LEAVE HAYWARD, B 4:15, B 7:00, E 8:30, B 9:00 and E 11:00 a. m. and 2:25 p. m.

LEAVE ALAMEDA, B 5:15, B 7:36, E 9:06, B 9:36 and E 11:36 a. m., 1:35 and 4:05 p. m.

B Sundays excepted. E Sundays only.
D To Oakland only. C To Fruit Val only.

T. H. GOODMAN, **A. N. TOWNE,**
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



The following time will take effect

Saturday, October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A.M.	12:45 A.M.	2:40 A.M.	2:15 P.M.
4:00 P.M.	8:15 P.M.	8:20 P.M.	9:30 P.M.

ON SUNDAYS.

8:30 A.M.	12:30 P.M.	1:00 P.M.	5:00 P.M.
-----------	------------	-----------	-----------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco.
6:00 A.M.	7:30 A.M.	7:15 A.M.	10:30 A.M.
1:00 P.M.	2:30 P.M.	3:15 P.M.	7:30 P.M.

ON SUNDAYS.

10:15 A.M.	3:00 P.M.	2:30 P.M.	7:00 P.M.
------------	-----------	-----------	-----------

TICKETS for sale at 315 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent. N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf. L. C. FOWLE, General Freight and Passenger Agent, Vallejo October 1, 1870. 13v20-1y

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago to Pittsburgh, Harrisburg, Philadelphia and New York.

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city and New York.

Express trains on this line are equipped with the BEST-INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in San Francisco, at 422 California street, 203 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.

T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, San Francisco, Cal. 4v22-1y

FROM THE WEED Sewing Machine, the **WHOLE WORLD** being judges—as they are the **LATEST**, and also the **BEST!** Why? Because the **WEED** Machines **work easier, run smoother, and make more VARIETY.** Buy the **LATEST** always. Call and see S. E. Hoar, 324 Kearny St. S. F., Ast.

Complete Volumes—Bound or unbound—of the SCIENTIFIC PRESS from Jan. 1, 1864, to date, can be had at reasonable rates at this office. They contain much valuable information.

HARD TIMES AND HIGH PRICES.

If there be anything especially notable at this time it is dearth of occupation. We have in San Francisco alone, ten thousand persons struggling against the force of a downward pressure, which may have long continuance. Small shopkeepers, innumerable, find business departing and high rents eating them up. Lodging houses numbered by thousands are half empty. A large army of speculators is sorely oppressed with homestead lots, falsely, so called, that show no prospect of having any value in our time.

It is time that such people he-think themselves about the future. Large numbers of people now in this city, would probably leave it, if they could be brought to see that their available money will be all spent in holding on for the expected revival. For four years past we have done little but puff up the bladder and admire its apparent increase of dimensions. We have been preparing for a rush of strangers eager to buy at any price. Our large land owners have driven off emigration, by holding for prices impracticable. No state in the Union, of the same population, and the same agricultural area, and so restricted a market, sets anything like such prices on land, naked, fenceless, treeless and waterless. Expected buyers have not come this way nor are they likely to. Meantime these large landlords have been borrowing, to hold on, instead of selling to pay off. So far the assessment system has made poor people pay the fair taxation due by the rich. This is at an end. Fair valuations are about to compel the subdivision of land, to the great benefit of the State.

If our remarks are justly founded, we can earnestly counsel the surplus population of our city to seek the country, and large land owners will see their interest in subdividing and pricing, so as to retain the population we have. For if the high price of land drive our own people away, it will be long before strangers will come to a place which their reports condemned. Pretty nearly all the fancy men who can be tempted to pay fancy prices, are already accommodated; and if we want to meet the requirements of the times, we must make our prices square with the public necessities. The gas that has been inflating the bladder must be let out. "The great rush" has not come and no one is so blind as not to see that it is not going to come, till the gas is out, and our prices square with those of other states. During the past season one real estate house has spent \$600 in advertising lands in the vale of Napa without finding a single person to buy at the asking prices!

Now let us suggest that those who want to sell land, will put it at prices to induce the current of buyers to come to our State. When the tide turns, prices may stand a gradual advancement, till, in time, present impractical valuations may be regained.

THE AMERICAN PRESS IN EUROPE.—Dr. Lœckler, in a lecture recently delivered in Berlin, on the "Influence of the Press," gives an interesting sketch of the history of the newspaper, and pays a special compliment to the progress of the American newspaper press. He regards the weekly edition of the New York Tribune as the very climax of the newspaper enterprise of the age, and tells his public that this edition of the Tribune weighs fifteen tons, and that if the numbers were placed one upon the other they would make an immense pillar, having a base of six German feet broad, and a shaft of one hundred and forty German feet high!

OPPOSED TO RAILROADS.—Nathan Hall, of Durham, Conn., in 1833, thanked God that he lived "in a hilly country, where it was impossible to build railroads." To-day the cars of the Air Line Railroad run through the door-yard of his place, between his house and barn, and within four feet of his side door.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING JANUARY 31ST.

HORSE HAY-RAKE.—Olpha Bonney, Jr., San Francisco, Cal.

DISINFECTING AND VENTILATING BURIAL VAULTS.—Benjamin F. Lyford, San Francisco, Cal.

FEEDING MECHANISM FOR SEWING MACHINES.—Walter B. Higgins, San Francisco, Cal.

ELECTRO-MAGNETIC SEWING MACHINE.—George Stevens and Joshua Hendy, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

MILLS IN THE STATE.—There are 158 grist mills in the State, with an aggregate of 358 run of stones. Seventy of these mills are driven by steam and 88 by water. Their aggregate cost was about \$2,000,000 and their capacity 16,000 barrels of flour.

The number of saw mills is 417; of which 231 are driven by steam, and 196 by water. Their cost was about \$3,620,000, and their daily capacity 4,300,000 feet of lumber.

There are seven woolen mills in the state; but the statistics with regard to their capacity or production is very meagre.

There is one knittling mill, one haggling mill, and one rope manufactory, all run by steam.

The quartz mills number 422; of which 207 are operated by steam, 198 by water and 17 both steam and water,—using the former only when the latter fails. The aggregate number of stamps is 4,673. The aggregate cost of the quartz mills has been about \$6,500,000. Nevada is the leading county for quartz mills, Tuolumne second and El Dorado next.

CENTRAL PACIFIC EARNINGS.—The annual earnings of the Central Pacific railroad, for five years, are set down as follows, commencing with 1865:—\$401,941; \$864,917; \$1,421,525; \$2,300,767; \$5,670,882, and closing with the earnings of 1870, at the enormous sum of \$7,920,708. This is certainly a most favorable showing. If the business continues to increase in the same ratio, the earnings for 1871 will be not less than \$10,000,000. One of the most important features connected with this exhibit is the fact that of the earnings for 1870, about 65 per cent. was for local traffic.

DISTINCTION BETWEEN ANIMALS AND VEGETABLES.—Professor Rolleston, of Oxford, in his late book on "Forms of Animal life," gives a new criterion by which to distinguish animals from vegetables. He says that in the case of all animals the embryo absorbs its yolk from the inside, while in vegetables the germ of the seed is surrounded by its albumen. This is a foreshadowing of the way in which the adult animal or plant absorbs its food; the former places it within itself for digestion and assimilation, while the latter takes it from outside.

THE DOLLAR ENGINE.—Our mechanical department is in receipt of this ingenious toy, which is a reciprocating engine, with cylinder, piston, fly-wheel, hoiler and patent safety-valve, yet weighs less than four ounces and can be covered with a tumbler. It is said to make over a thousand revolutions per minute, and to be upwards of 500-feet power. This last is a mistake in part. Its attractive power may be greater, but the repulsive power of 500 fleas, we speak feelingly, can't be equaled by any engine yet invented. Sent by mail (the toy, not the fleas), prepaid, on receipt of \$1.30, by Colby Brothers & Co., 508 Broadway, New York.

VAN NOSTRAND'S

Electric Engineering Magazine,

Commenced January, 1869.

Consists of articles selected and matter condensed from all the Engineering Scientific Serial publications of Europe and America.

The third volume of this Magazine is completed by the issue for December.

The growing success during the past two years demonstrates the correctness of the theory upon which the enterprise was founded. Communications from many sources prove that the Magazine has met a widespread want among the members of the engineering profession.

A summary of scientific intelligence, selected and sifted from the great list of American and European scientific journals is at present afforded by no other means than through the pages of this Magazine.

In the next volume, beginning with the January number, we shall commence some important improvements. Each number of the Magazine will hereafter contain something of value relating to each of the great departments of engineering labor.

More space than heretofore will be devoted to short discussions or elucidation of important formulae, especially such as have proved valuable in the practice of working engineers; our facilities for affording such items are extensive and rapidly increasing.

The progress of great engineering works in this country will be duly chronicled.

Selected and condensed articles, with their illustrations, from English, French, German, Austrian, and American scientific periodicals, will contribute to make this Magazine more than ever valuable to the engineering profession, and will afford a compilation without which the library of the working engineer will be incomplete.

112 Pages, Large 8vo. Illustrated Monthly.

Price \$5.00 a year in advance, single copies fifty cents.

Notice to New Subscribers.

Persons commencing their subscriptions with the 3d year (January, 1871), and who are desirous of possessing the work from its commencement, will be supplied with Volumes I., II., and III., neatly bound in cloth, for \$10.00, sent free by mail on receipt of price.

Notice to Clubs.

An extra copy will be supplied gratis to every club of five subscribers at \$5 each, sent in one remittance.

D. VAN NOSTRAND.

Publisher, Importer and Bookseller, 23 Murray and 27 Warren street, NEW YORK. 5v23-4t

THE SCIENTIFIC PRESS.

U. S. & FOREIGN

PATENT AGENCY,

ESTABLISHED IN 1860,

Is now the principal office West of the Mississippi River. By long and faithful attention

Messrs. Dewey & Co.,

Have built up an extensive business, and gained a large and successful practice and experience, which enables them to render greatly superior service to

Pacific States Inventors,

who can depend upon their advice regarding the patentability and worth of their inventions, the correct drawing up of their specifications in order to secure their full rights under firm patents which will stand the test of law in case of infringement by others.

Inventors securing really valuable claims through our Agency, will have our influence free in making the merits of their patents widely known through the columns of the press—the best authority and medium of recommendation in such matters on this coast.

If you have a valuable invention place it only in the hands of first class, responsible agents, who do not, for the want of experience or ability, assume false airs of superiority and dignity, nor exact exorbitant charges on account of transacting a limited business.

Circulars of Advice Free.

Our 48 page circular will be furnished free on application. It contains extracts of the Patent Law, 112 illustrated mechanical movements; hints to inventors, and much other desirable information concerning the obtaining of patents, etc., for inventors and patentees.

OUR FOREIGN PATENT CIRCULAR (free) gives information concerning the requirements of Foreign Governments regarding the granting and working of patents. THE SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, both first class 16 page papers, are published at \$4 per annum each, by

DEWEY & CO.,

Patent Agents, Engravers and Publishers, No. 414, Clay st., San Francisco.

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v13-6m B. F. HOWLAND

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 473 Brannan street. 24v19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

PERSONAL.—MR. L. P. McCarty, now traveling agent for the SCIENTIFIC PRESS of San Francisco, (by the way, an excellent paper), has succeeded in getting quite a number of subscribers.—Tolo Dem.

SUCCESS IN BUSINESS.—Success in the business world usually depend upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22-3msm

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 15v20-7



Scientific Press Office, 414 Clay Street, SUBSCRIBE! GET UP CLUBS!

Farmers, Horticulturists, Sericulturists, Stockmen, News Dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.

Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO. Publishers, Patent Agents, and Engravers, 414 Clay Street, S. F.

AGENTS WANTED FOR

Zell's New Encyclopedia.

This work, the Best, the Latest, and the Cheapest ever published. It is not only a COMPLETE ENCYCLOPEDIA, Freshly written, and up with the times, but is also a thorough and complete

Lexicon, a Gazetteer of the World, a Biographical, Bibliographical, Legal and Medical Dictionary,

And the only book ever published containing all these subjects, with 2,000 Engravings. This really wonderful work is to render readily accessible reliable information on every conceivable subject. No human being could be found to whom it would not prove invaluable. It minutely describes every disease flesh is heir to; explains every legal term or phrase; gives the geography of the entire world; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with authors, sculptors, travellers, warriors, painters, divines, historians, naturalists, etc., of ancient and modern times; speaks of all the battles and heroes of the late war; and explores the whole vast vegetable kingdom.

AGENTS WANTED.—Apply to F. DEWEY & CO., 546 California Street, San Francisco, General Agents for the Pacific States, and Territories. 19v21

PAPER-BOATS.

Have been rowed by the winners of NINETEEN races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada,

besides much other information of interest to oarsman. Every one interested in boats or rowing could have a copy. For catalogues, circulars and price list, address

WATERS, BALCH & CO.,

23v24-3m

303 River Street, Troy, N. Y.



The Great Family Medicine.

TAKEN INTERNALLY, it cures sudden Colds, Coughs, Croup, Weak Stomach, General Debility, Nervous Sore Mouth, Canker, Liver Complaint, Dyspepsia or Indigestion, Cramp or Pain in the Stomach, Bowel Complaint, Painters' Colic, Asiatic Cholera, Diarrhea and Dysentery.

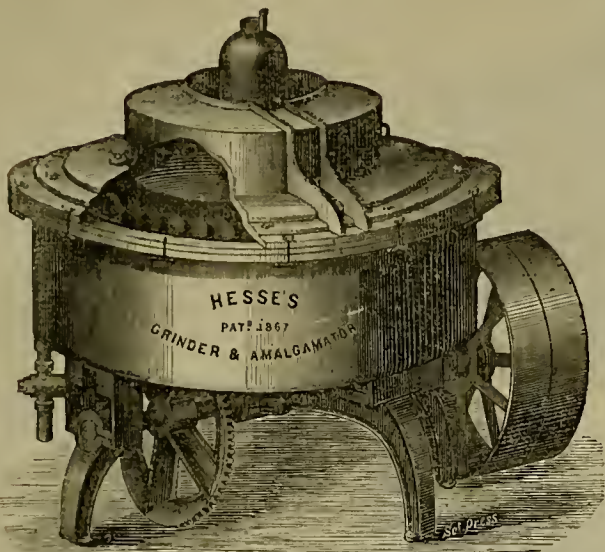
APPLIED EXTERNALLY, cures Rheumatism, Boils, and Old Sores, Severe Burns, Scalds, Cuts, Bruises and Sprains, Swelling of the Joints, Ring-Worm and Tetter, Broken Breasts, Frosted Feet and Chilblains, Toothache, Pain in the Face, Neuralgia and Rheumatism. It is a sure remedy for Ague, Chills and Fever.

PAIN KILLER.

Taken Internally, should be adulterated with milk or water, or made into a syrup with molasses. For a Cough, a few drops on sugar, eaten, will be more effective than anything else.

See printed directions, which accompany each bottle. Sold by all Druggists. 4t-1m

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

LORD & PETERS,
304 Battery street, San Francisco, Cal.

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansome St.

GEO. L. FAULKNER, Agent.

1v22-3mins

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

GILLES D. GRAY, JAMES M. BAYNE.

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

in Building of Pacific Insurance Co., N. E. corner Call

foinla an Leidesdorf streets,

27v16 SAN FRANCISCO.

(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.

900 pages, large 4-to, profusely illustrated.

This is the only compend of

CAS LIGHTING

ever projected, and will be the standard work of refer-

ence among

Companies,
Manufacturers,
Engineers,

Patentees, and

Scientific Men

Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be

addressed to the Compiler,

JAMES R. SMEDBERG,

Consulting Engineer S. F. Gas Co.,

26v21-1f SAN FRANCISCO, CAL.

Alleghany Consolidated Gold Mining Company—

Location of Works, Sierra County, California.
NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 27th day of Dec. 1870 the several amounts set opposite the Names of the respective Shareholders as follows:

Names.	No. of Certif.	No. Shares.	Amount.
John J. Roche.....	4	15	7 50
W H Tompkins.....	44	35	17 50
Geo Treat.....	56	1000	250 00
Charles Adams.....	58	1000	600 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of December 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, by the Secretary, 37 New Merchants Exchange, San Francisco, on the 13th day of February, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment, together with costs of advertising and expenses of sale. J. M. BUFFINGTON, Secy.

Office, 37 New Merchants Exchange, (third floor), California st., San Francisco, California. ja28

Continental Silver Mining Company—

Location of Works, near Hamilton, White Pine County, Nevada.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company held on the 31st day of December 1870, an assessment of (\$1) one dollar per share was levied upon the capital stock of said Company, payable immediately to the Secretary, at the office of the Company, 302 Montgomery street, San Francisco Cal., in gold coin of the United States.

Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent, and will be duly advertised for sale by auction, and unless payment shall be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with costs of advertising, and expense of sale. By order of the Board of Trustees. H. H. BLAKE, Secretary, Office 302 Montgomery Street, San Francisco Cal. ja7

Deep Spring Milling and Mining Company—

Location of Works, Deep Spring Valley Inyo County, California.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of January 1871, an assessment of \$1 per share was levied upon the capital stock of said company, payable immediately in United States gold coin, to the Treasurer at his office 306 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 25th day of February 1871 shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. A. H. JORDAN, Secy pro tem. Office, 340 Montgomery st., San Francisco Cal. ja28

Eagle Quicksilver Mining Company—

Location of works, Santa Barbara County, California.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of February, 1871, an assessment of twenty (\$20) dollars per share was levied upon the mines of said company, payable immediately in United States gold and silver coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on the 4th day of April, 1871, shall be deemed delinquent, and will be duly advertised April the 8th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery street, San Francisco, California. 11-5w

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

El Refugio Petroleum Company,---Loca-

tion Santa Cruz County, State of California.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company held on the 18th day of January 1871, an assessment of sixty five (65) cents per share was levied upon the capital stock of said Company payable immediately in United States gold coin, to the Secretary R. Wegener, No. 414 California street San Francisco California.
Any stock upon which said assessment shall remain unpaid on the 21st day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday the 14th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. WEGENER, Secretary. ja21 Office, 414 California street, San Francisco, Cal.

Jennie A. Consolidated Mining Company,---

White Pine County, Nevada.
NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 31st day of December, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A Delgado.....	4	2,000	\$200 00
S Hanson.....	5	1,000	150 00
S Hanson.....	5	2,000	200 00
S Hanson.....	32	100	10 00
S Hanson.....	33	100	10 00
S Hanson.....	34	100	10 00
S Hanson.....	35	100	10 00
S Hanson.....	36	100	10 00
S Hanson.....	37	100	10 00
S Hanson.....	38	100	10 00
S Hanson.....	39	100	10 00
S Hanson.....	40	100	10 00
S Hanson.....	41	100	10 00
S Hanson.....	42	100	10 00
J H Cook.....	54	1,000	100 00
J H Cook.....	55	1,000	100 00
J H Cook.....	56	500	50 00
J H Cook.....	57	500	50 00
J H Cook.....	58	250	25 00
J H Cook.....	59	125	12 50
J H Cook.....	60	125	12 50
J H Cook.....	61	100	10 00
J H Cook.....	62	100	10 00
J H Cook.....	63	100	10 00
J H Cook.....	64	100	10 00
J H Cook.....	65	100	10 00
J H Cook.....	66	100	10 00
J H Cook.....	67	100	10 00
J H Cook.....	68	100	10 00
J H Cook.....	69	100	10 00
J H Cook.....	70	75	7 50
J H Cook.....	71	75	7 50
J H Cook.....	72	50	5 00
J H Cook.....	73	50	5 00
J H Cook.....	74	50	5 00
J H Cook.....	75	50	5 00
J H Cook.....	76	25	2 50
J H Cook.....	77	25	2 50
J H Cook.....	78	25	2 50
J H Cook.....	79	25	2 50
J H Cook.....	80	25	2 50
J H Cook.....	81	25	2 50
J H Cook.....	82	25	2 50
J H Cook.....	83	25	2 50
J H Cook.....	84	25	2 50
J H Cook.....	85	25	2 50
J H Cook.....	86	25	2 50
J H Cook.....	87	25	2 50
J H Cook.....	88	25	2 50
J H Cook.....	89	25	2 50
J H Cook.....	90	25	2 50
J H Cook.....	91	25	2 50
J H Cook.....	92	25	2 50
J H Cook.....	93	25	2 50
J H Cook.....	94	25	2 50
J H Cook.....	95	25	2 50
J H Cook.....	96	25	2 50
J H Cook.....	97	25	2 50
J H Cook.....	98	25	2 50
J H Cook.....	99	25	2 50
J H Cook.....	100	25	2 50

And in accordance with law, and an order of the Board of Trustees, made on the 31st day of December, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the company, by the Secretary, 37 New Merchants Exchange, San Francisco, on the 27th day of February, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. M. BUFFINGTON, Secretary. Office, 37 New Merchants Exchange, California street, San Francisco, California. 12-11

Kincaid Flat Mining Company, Tuolumne

County, California.
NOTICE is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of January 1871, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, Cal.
Any stock upon which said assessment shall remain unpaid on the 16th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Secy. ja14 Office, 220 Clay St., San Francisco.

Marble Falls Mining Company,---Location

of Works: Mammoth District, Nye County, State of Nevada.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of February, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 4, No. 405 Front street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 16th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 4th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. JAS. N. SUDAM, Secretary. Office, Room No. 4, No. 405 Front street, San Francisco, California. 12-11

Stockholders' Meeting---Globe Gold and

Silver Mining Company. Special meeting of Stockholders.---Location of mine and works, Monitor District, Alpine County, California.
NOTICE is hereby given, that a special meeting of the stockholders of the Globe Gold and Silver Mining Company will be held at the office of the company, 447 Bryant street, San Francisco, on Monday, the 13th day of March, 1871, at 10 o'clock M. of said day, to act upon the following business: To move the principal office of the company to Monitor, Alpine County, California, and for the transaction of such other business as may properly come before it. Dated at San Francisco, February 8th, 1871. B. SHRAFF, H. WINCHESTER. Majority of the Board of Trustees of the Company. 12-11

Taylor Mill and Mining Company---Location

of works, Georgetown District, El Dorado County, State of California.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 31st day of January, A. D. 1871, an assessment of fifty (50) cents per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 324 Montgomery street, San Francisco, Cal.
Any stock upon which said assessment shall remain unpaid on the 6th day of February 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of March, A. D. 1871, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees. S. M. T. S. MURPHY, Secretary. Office, 524 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. 12-5w

Ophir Copper, Silver and Gold Mining Company---Location of Works, Ophir, Placer County, California.

NOTICE.—There are delinquent upon the following described Stock, on account of Assessment levied on the Thirtieth day of December, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Aldrich, E. K.....	52	37 1/2	\$ 14 80
Aldrich, E. K.....	53	17	1 80
Adrian, Mrs E.....	135	100	40 00
Adrian, Mrs E.....	186	12	4 80
Bronley, J.....	228	12	4 80
Baldwin, Sarah.....	211	12	4 80
Choate, N.....	89	25	10 00
Cosshall, T. C.....	87	100	40 00
Cosshall, T. C.....	180	12	4 80
Higgins, Chas.....	155	137 1/2	54 80
Higgins, Chas.....	193	16	6 40
Hamilton, Joe.....	156	50	20 00
Hamilton, Joe.....	188	34 1/2	13 80
Hathaway, W.....	169	32 1/2	12 80
Hathaway, W.....	232	62 1/2	25 00
Hathaway, W.....	224	27 1/2	10 80
Janison, S.....	128	23 1/2	9 40
Janison, S.....	174	12	4 80
Leahy, Joseph.....	195	12 1/2	4 80
Leahy, John.....	189	100	40 00
Leahy, John.....	151	87	34 80
Leahy, John.....	167	10	4 00
Miller, W. E.....	136	27 1/2	10 80
Miller, W. E.....	187	32	12 80
McMurray, Mrs.....	original stock.	137	54 80
McMurray, Mrs.....	178	16	6 40
McCurdy, E.....	173	23 1/2	9 40
McCurdy, John R.....	139	100	40 00
McCurdy, John R.....	180	12	4 80
McCurdy, John R.....	212	290	60 00
Pugh, C. D.....	227	17	6 80
Patton, James.....	44	25	10 00
Patton, James.....	117	100	40 00
Patton, James.....	175	17 1/2	7 00
Patton, James.....	22	25	10 00
Peck, Wm E.....	163	50	20 00
Peck, Wm E.....	199	5 1/2	2 20
Ringer, John.....	137	137	54 80
Ringer, John.....	189	16	6 40
Sickles, F.....	67	13	5 20
Sickles, F.....	183	1	0 40
Shaffer, John.....	150	137	54 80
Shaffer, John.....	191	16	6 40
Streep, Chas.....	164	200	80 00
Streep, Chas.....	200	23 1/2	9 40
Thorp, Thos.....	131	100	40 00
Thorp, Thos.....	203	12	4 80
Till, George.....	132	100	40 00

And in accordance with law, and an order of the Board of Trustees, made on the 30th day of December, 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of John Middleton & Son, No. 316 Montgomery street, on the 27th day of February, 1871, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale. R. G. BRUSH, Secretary. Office, 314, California street.

Nevada Land and Mining Company---Loca-

tion of Works: Stopped, Johnson & Latham Antelope and Clifton District, Elko County, State of Nevada.
NOTICE is hereby given that at a meeting of the Board of Trustees of said Company, held on the 19th day of January, 1871, an assessment of two and one half (2 1/2) cents per share was levied upon the Capital Stock of said Company, payable immediately in United States gold coin, to the Secretary, at his office, Room 6, No. 302 Montgomery street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on Monday, the 20th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office, Room 5, No. 302, Montgomery street, San Francisco, California.

Noonday Silver Mining Company.---Loca-

tion of Works---White Pine Mining District, White Pine County, Nevada.
NOTICE is hereby given, that at a meeting of the Trustees of said Company, held on the 19th day of January, A. D. 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, No. 419, California street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 23rd day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 17th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. C. E. ELLIOTT, Secretary. Office, Room 21, Hayward's Building, 419, California street, San Francisco, California.

Placer Gold Mining and Canal Company---

Location of Works, Placer County, California.
NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of January 1871, an assessment of \$5.00 per share was levied upon the capital stock of said Company, payable immediately in United States Gold coin, to the Secretary, at his office, 202 Post Street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on Wednesday the fifteenth day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 11th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees. C. S. HALEY, Secretary. ja14 Office, 24 Post St., San Francisco, Cal.

St. Patrick Gold Mining Company---Loca-

tion of works, Ophir District, Placer County, Cal.
NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the twenty-seventh day of Dec. 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names	No Certificate	No. Shares	Amount
John Center, Trustee.....	29	833	\$833
John Center, Trustee.....	30	167	167
J W Gashwiler.....	27	100	100
J W Gashwiler.....	28	100	100
J W Gashwiler.....	23	100	100
J W Gashwiler.....	6	600	600

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of December 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Company No. 8 Duncan's Building California street, San Francisco, Cal, on 26th day of February 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent Assessment thereon together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary. 12-11 Office, No. 413 California st., San Francisco, Cal.

CAUTION.

BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original Inventor and Sole Maker in the United States and Foreign.

1, WHARF ROAD, OTT ROAD, LONDON, AND BOR-

DEAUX, FRANCE.

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF**STEAM ENGINES.**Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
street, San Francisco. 3-47**THE RISDON**
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.Directors: Wm. Alvord, Chas. E. McLane,
S. F. Butterworth, Lloyd Tevis,
Wm. Norris, Joseph Moore, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-4v**UNION IRON WORKS,**
Sacramento.WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF**STEAM ENGINES, BOILERS,**
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam PistonPACKING, for new and old Cylinders.
And all kinds of Mining Machinery.Front Street, between N and O streets,
SACRAMENTO CITY.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.**Steam Engines and Boilers,**

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.N. B.—Sole Agents for sale of HUNTON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO**EUREKA FILE WORKS.**

311

Bet. Fremont and
Beale,

MISSION ST., SAN FRANCISCO

T. G. DURNING, Superintendent.

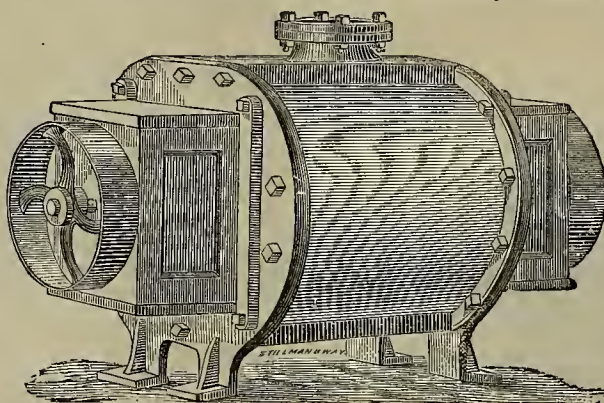
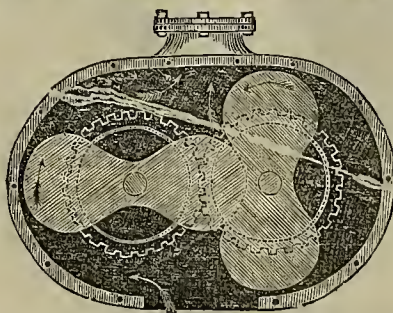
New Files of every description made to order. Files
re-cut and warranted equal to new. Reaper and Mower
sections, bars, etc., made to order at short notice. Or-
ders from the country promptly attended to. 22v22f**California Fire and Burglar Proof Safe.**At the late fire on Fremont Street, Oct. 18th, one
of the safes, containing Miller & Haley's books and pa-
pers, stood the test PERFECTLY, to whom all interested
are referred. This safe is built at the**CALIFORNIA TOOL WORKS,**143 Beale Street, bet. Mission and Howard. All kinds
of Edge and other Tools made to order. Agricultural ma-
chinery repaired. Job grinding and polishing by steam.
All work warranted. Orders promptly attended to.
22v22-3m J. WEICHBART, Proprietor.**McAFEE, SPIERS & CO.,**
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.
2v21-1f**ROOT'S PATENT FORCE BLAST ROTARY BLOWER.**

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1861; July
24, 1866; and Oct. 9, 1868.ADAPTED
FOR
Smelting.Foundry,
Mining
and
Steamships.REQUIRES
Fifty Per Cent.LESS POWER
Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.
For circulars and further information address

v16-3m

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

THE

CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

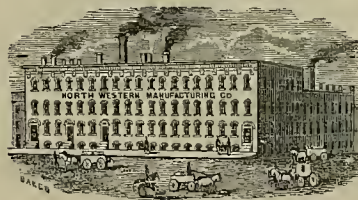
**DOUBLE PLUNGER STEAM PUMPS,
FOR DRAINING MINES.**

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

NORTH-WESTERN MANUFACTURING COMPANY.

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,

Brass and Iron Goods for Steam and Gas Fitters and Engine Builders,

Cast Iron and Malleable Iron Fittings and Castings.Steam Warming and Ventilating apparatus for public and private buildings. Hoist-
ing Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

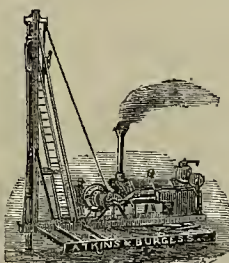
**STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL**

GEARING AND

GENERAL MACHINERY,

CASTINGS

MADE TO ORDER.



Jobbing Promptly Attended to.

3v22-3m

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE**GOVERNOR.**These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21**NELSON & DOBLE,**

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shears' Tools.
13 and 15 Fremont street, near Market, San Francisco.
1v13-4v**CALIFORNIA BRASS FOUNDRY,**No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Sudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superlative tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Conne-
ctions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED, V. KINGWELL.**MACHINERY**

— AT —

GREATLY REDUCED RATES.**Miners' Foundry & Machine Works,**235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture**MACHINERY, CASTINGS & BOILERS**

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20g

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER,

REAPER AND MOWER SECTIONS, BARS

AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-4v**The California Powder Works**

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And **BLASTING****P O W D E R ,**OF SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively**Three Gold Medals**By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.

We also call attention to our

HERCULES POWDER,Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.
CHAS. WEST,
No. 139, 3d Street, S. F.

NEVADA METALLURGICAL WORKS,

19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHART.
Ores Crushed, Sampled and Assayed.
Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all particular questions given.
26v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE, Manager.
J. A. MAHS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST.
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.
11v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS,
4v16-3m

HENRY G. HANKS,

Assayer and Chemist,
AND DEALER IN
Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.
P. O. Box, 1180. 649 Clay Street, San Francisco.

Baltimore Copper Company.

Highest Price paid for Copper, Ore, 15 pr. ct.
Regulas, and Bars.

DANIEL MEYER, 210 Pine Street,

23v21-3m SAN FRANCISCO.

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required.
5v22-1ya

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide. Prepared expressly for chlorinating purposes, by A. T. Ladd, from ore taken from his celebrated Manganese Mine in Corral Hollow. Pronounced by Mr. Mopman of the Chlorinating Works of Nevada City, and others, as the best they ever used. Crude ore sold in quantities at low rates. Apply to BLUXOMB & CASSEBOHM,
20v21-3m No. 316 California street, San Francisco.

MILLER & HALEY'S MILLS,

BERRY STREET,

Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of such blinds, door frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us during our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.
19v21-3m MILLER & HALEY,

R. H. McDONALD & CO.,

WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3m S. W. Cor. Market and First streets.

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN, President.
R. N. VAN BRUNT, Cashier.

BANKING HOUSE,

No. 415 CALIFORNIA STREET.
25v20-4y



FOR SALE BY THE

HARDWARE TRADE.

YALE LOCK M. F. G. CO., N. Y.

Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.

FINE STORE DOOR, CLOSET, CHEST, DESK AND DRAWER LOCKS,

POST OFFICE LOCK-BOXES,

CAST BRASS FRONTS, GLASS DOORS,

PRISON LOCKS,

UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.

OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,

Table and Pocket Cutlery, Eng. and Am. Files Saws &c.

VARNISHES AND JAPANS.

N. B. Send for circular and price list. Lower than the lowest.
24v21-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MEXICAN RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.

MINERS' RUBBER CEMENT.

THE

ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable; it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

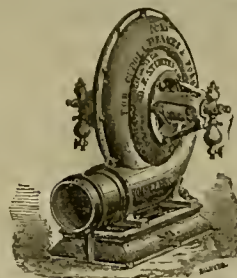
WM. BARTLING, HENRY KIMBALL,
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Banners, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.
24v21-3m

Machinery.



STURTEVANTS

PRESSURE

BLOWER,

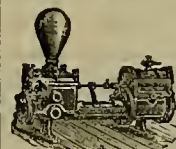
Are for sale by

Berry & Place.

112 California st.,
San Francisco,
who have the different sizes always in store. 4v22

THE ANGEL'S QUARTZ MINE

Shaft is over 400 Feet Deep,
and is kept free from water in its lowest level by the



BLAKE STEAM PUMP

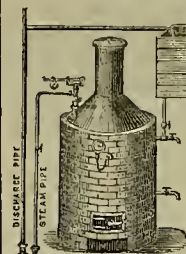
SOLD BY

BERRY & PLACE,

112 California st., San Francisco. 4v22

STEAM JET PUMP.

Blakess & Williams' Patent, for
Water, Oils, Acids, Etc.



The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine. We ask the attention of all proprietors of steam power to the following points of merit—it is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAR. F. BROCK, 117 California st., San Francisco; KEEP & BARGION, Stockton. Can be seen at MOAFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

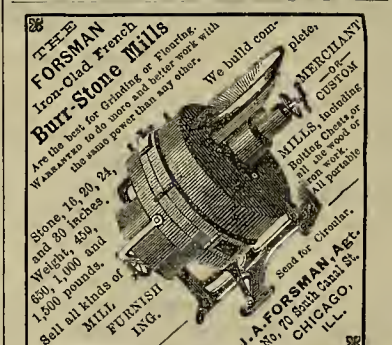
Blake's Patent. THE BEST PUMP for Boilers, Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., in Block's Patent Steam PUMP. It is simple, compact and powerful, needs no expert to run it, and will start at any point. Its warranted source, etc., in Block's Patent Steam PUMP. Agents, 112 & 114 California St., 21v21-4f

SEVERANCE HOLT & CO.,

DIAMOND-POINTED DRILLS

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Subsoiling. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m



Send for Circular. 4v23-3m

Established 1843.

LOUIS ESPENSCHIED,
WAGON MANUFACTORY,

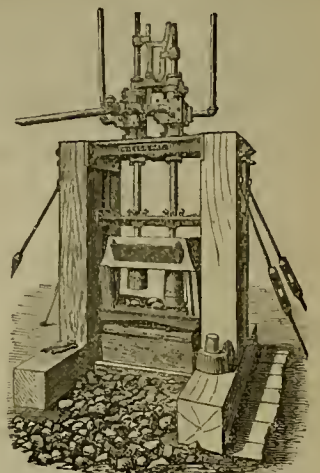
No. 1815 Broadway, St. Louis, Missouri.

3v22-6ms

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN

China, Glass and Queensware, Lusters, Looking Glasses &c., &c., 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

THE WILSON
Patent Steam Stamp Mill

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN K. WILSON,
San Francisco,
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. K. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolting Cloth; Slat Machines; D r a n Dusters; Mill Picks; Mill Picks dressed; Millstones required rebuilt and balanced.

MANUFACTURERS OF
French Burr Mill Stones, Portable Mills of all sizes,
Slat, Pabais, Drags, &c. Mills specially adapted for grinding Quartz.

from 16 to 36 inches, for grinding Corn, Barley, Feed, Slat, Pabais, Drags, &c. Mills specially adapted for grinding Quartz.
2v22-1yus 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam hotions, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Softers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DEHNSTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold. 20v21-4f

The Stetefeldt Furnace.

For information of any description respecting this process,
APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
14v21-1y San Francisco.

Oriental Powder Co.,MANUFACTURERS OF
Blasting,**Mining, and****Sporting Powder,**

Of superior strength and cleanliness.

**Patent Compound for Blasting
and Mining.****Electric Batteries, Fuses, and
Leading Wire for Blasting.**

Address

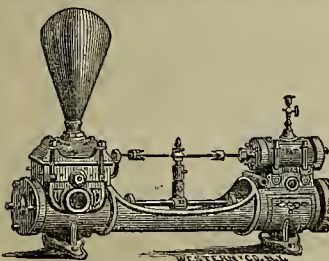
A. W. TAYLOR, Agent,

Corinne, Utah.

Send for Circulars.

18v21-lam21

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

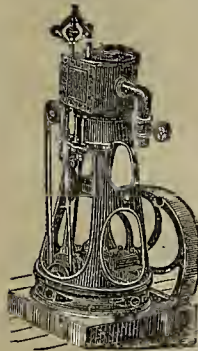
**A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.**

Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qs16p

Pacific
Insurance Company,
No. 122 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.**RIDER'S
Automatic Cut-off
Vertical Engines**Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v24-ly16p

**1000 Farms**

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Rancho," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-sms

The Pacific coast is well represented in the SCIENTIFIC PRESS, a large 16 page quarto, published by DOWEY & Co., at \$4 per year. It is fully up to its more pretensions competitors of the East, while its information is more reliable than many of them.—*Mechanic & Inventor*, Detroit.

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Muller's Brazilian spectacles are acknowledged to be the best in use.

WIESTER & CO.,
No. 17 New Montgomery Street, San Francisco.
PATENTS BOUGHT AND SOLD ON COMMISSION.**Longshores Combination Tool.**

town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

This device is just what its name indicates. As a KITCHEN TOOL it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

**Hay Press.**

The best and cheapest hay press in the United States. Presses furnished at manufacturing cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

New England Spring Bed.

The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

WIESTER & CO.,
17 New Montgomery Street, (Grand Hotel), San Francisco.**Logan's Rubber Back Lash Spring**

Patented May 17, 1870. The attention of Manufacturers and Mill Owners is respectfully called to the above valuable invention for

Preventing Back Lash in Mill Gearing.

No argument is deemed necessary to convince an intelligent Miller of the importance of preventing back lash, as it is well known that both the quantity and quality of the flour depends largely upon the steadiness of motion of the Burrs. Whenever the motion is communicated by an engine having two points in the revolution of the Fly-Wheel where no power is applied, there must be an unequal motion, and consequently more or less back lash. By the use of every heavy fly-wheel or a high speed, this inequality of motion may be diminished but it cannot be entirely prevented, and more steam will be required than with a lighter fly-wheel or slower speed. By the use of

Logan's Patent Rubber Springs,

the Back Lash is entirely prevented. The pinion being loose upon the spindle, and the connection between them being by the springs, the action of the springs keeps the eggs of the pinion at all times firm against those of the driving wheel, while a continuous forward pressure is given to the spindle and through it to the Mill-Stones.

The Right to the Pacific Coast is placed in our hands for sale at a very low price. Parties interested will please write for descriptive circular or call at our office and examine the model. A large number have already been sold and put into use in the Eastern States, and three are in daily use in a flour mill in this state. Parties buying territory will be furnished with the springs at manufacturing cost from the Factory in Illinois, or will be furnished with a sample to manufacture from free of charge.

Connecticut Mutual Life**INSURANCE COMPANY,**

OF HARTFORD, CONN.

Incorporated 1846.

ASSETS, - - - - - OVER \$30,000,000.**Surplus over \$8,000,000,****INCOME FOR 1869, - - - - - \$8,978,751 25**

Appropriated for Dividends payable in 1870, \$2,300,000.

Total Claims by Death paid to date, over \$9,560,000. Total Dividends Paid to Date, over \$6,700,000.

Ratio of Expense to Total Income 8.89, Only.**A Purely Mutual Company.**

All its surplus is equitably divided among the Policy-Holders in

ANNUAL DIVIDENDS,

Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making

ALL POLICIES NON-FORFEITING.**OFFICERS:**JAMES GOODWIN, President. ZEPHANIAH PRESTON, Vice-President.
EDWIN W. BRYANT, Actuary. WOODBRIDGE S. OLMSTEAD, Secretary.
LUCIAN S. WILCOX, M. D., Medical Examiner.**General Agent for the Pacific Coast.****JAMES B. ROBERTS, 315, California Street, San Francisco, Cal.**O. J. KING, T. B. KIMBALL, F. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. 16p

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London, will receive subscriptions and advertisements for the Press.

MAGAZINES. P. An.
Harper's..... \$4 00
Atlantic.....
Godey.....
New York Ledger.....
Blackwood.....
Hours at Home.....
Good Words.....
Peterson's..... 3 00
Arthur.....
Lady's Friend.....
Harper's Weekly..... 5 00
Chimney Corner.....
Literary Album.....
London Society..... 6 00
All the Year Round.....
n Ill. News..... 15 00
W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.**W. T. GARRATT & CO.**
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Gloves, Steam Whistles, HYDRAULIC PIPES AND
NOZZLES for mining purposes, Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes,
Particular attention paid to Distillery Work. Manufac-
turer of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP-
PER and BRASS. 6-1f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.**N. W. SPAULDING,**
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.

MANUFACTURERS OF

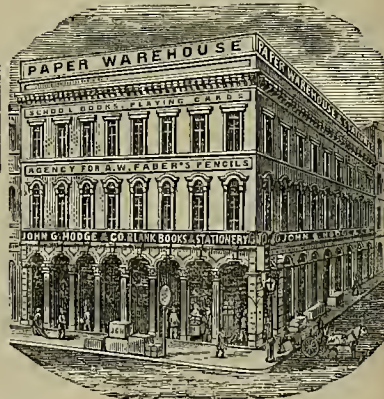
SPAULDING'S**Patent Tooth Circular Saws.**

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.**H. ROYER,**Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. us**John G. Hodge & Co.,**

IMPORTERS AND WHOLESALE

STATIONERS.

KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &cBlank Books made to order from Crew
Ex. Fine Ledger Paper.Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St. [San Francisco.
19v2leomly**PACIFIC**
Rolling Mill Company,
SAN FRANCISCO, CAL.Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention.
The highest price paid for Scrap Iron 9v143m9p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

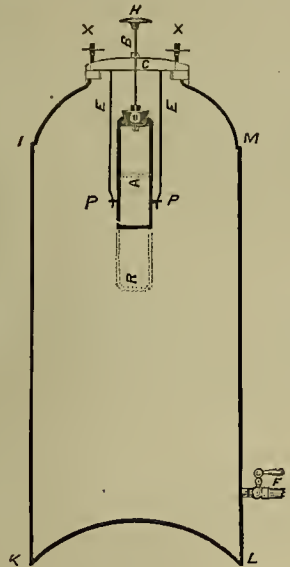
SAN FRANCISCO, SATURDAY, FEB. 18, 1871.

VOLUME XXII.
Number 7.

The Babcock Fire Extinguisher.

The Babcock Extinguisher, says the Secretary of the company owning the patent, is offered to the public, as a means not of extinguishing large conflagrations, but of preventing them. This seems to us a very fair claim. Many fires often end in fearful calamities which might easily be extinguished if taken in time; and in the case of small fires, where the steam-engine has stopped any progress of the flames, the damage done by water is often equal to what would have been caused by fire. Hence some such apparatus as this would appear very desirable; and this apparatus certainly seems to have fulfilled all the necessary requirements in very many cases.

The Extinguisher is simply a device for generating carbonic acid, saturating water with this powerful foe of the fiery element



and throwing the mixture to any point where it is required. The small cut shows the section of the apparatus. The leaden bucket, A, holds the charge of acid, and is kept in its upright position by the stopper, O, attached to the rod, B, coming through the cap, C. To prepare the Extinguisher for use requires about one minute. The directions are: Dissolve the contents of white package in water and pour into the Extinguisher—fill the Extinguisher with water to within three inches of the top. Pour the contents of glass bottle (acid) into leaden bucket, put in the stopper firmly, insert bucket in the Extinguisher and screw down cap hard and tight. In this condition it may be placed in position most accessible in case of fire, where it may remain any length of time, always ready for immediate use. In case of fire, pull up the knob, H; this draws out the stopper O, and the bucket, A, turns bottom side up, as shown by the dotted lines, R, being only supported after the stopper is withdrawn by pivots, P P, thus discharging its contents into the carbonated water. Instantaneous and powerful chemical action takes place, supplying sixty to ninety

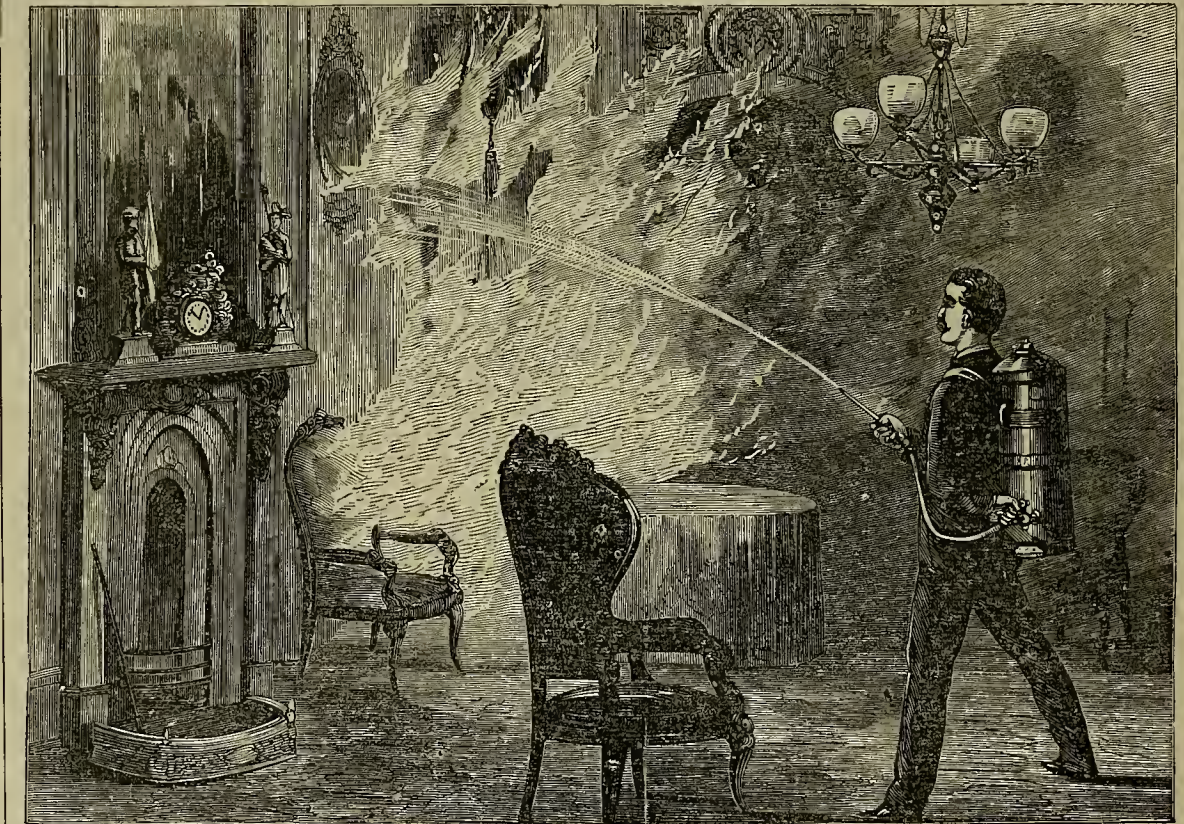
pound pressure to the square inch to throw the stream, and securing perfect readiness to play upon the fire in ten seconds of time.

The larger engraving shows the way in which the machine can be transported by a man and used effectively wherever needed.

According to the accounts which we have received, this apparatus has proved a decided success. We have a list of 210 fires arrested and put out by the simple contrivance. It is estimated that the value of property saved by its use, during the past year, amounted to four millions of dollars. Government has adopted it in a number of cases, we are told. The Chicago Fire De-

partment has, by formal resolution, attached two of the Extinguishers to each hook and ladder truck, and detailed men for using them. Three times this machine has put out fires in the Chickering Piano Forte Factory in Boston. Tiffany & Co., the New York jewelers, and Frank Leslie, the publisher, acknowledge its good offices in their particular cases.

Many of the leading railroads at the East use the device. The Michigan Central saved three cars last September. Where water cannot readily be obtained, as in the case of persons residing in the country, the machine must be especially valuable. In mills, or steamers and elsewhere it has done good service. The testimonials as to its good work are very strong.



THE BABCOCK FIRE EXTINGUISHER.

The device is easily managed; all that the person carrying the machine has to do is

are exposed to deadly dangers every moment, procrastination seems but little better than murder. Either clean out the Indians, or else give up the country to them. If the government would furnish arms to the people, with perhaps a few officers who should have limited power, we should be willing to leave the matter entirely to the Arizonian volunteers.

REDUCTION OF FARE.—The price of tickets on the immigrant trains, between Omaha and San Francisco, is reduced from \$72 to \$50.

THE ANCIENTS employed only convicts as miners, just as in Russia political and other offenders are sent to the Siberian works. In San Domingo and Hayti, the Spaniard sent to the miners the natives, whom their bloodhounds had not killed or hunger destroyed.

COPPER.—The price of copper in England, according to Lewis and Son's Annual Report, has been steadily decreasing since 1864. But the prospects of the trade are now much better than they were twelve months ago. The production of Chile, in 1869, reached the enormous amount of 55,000 tons fine per annum, but has now diminished to about 49,000 tons, with every prospect of a further decline. Should the present war soon cease, it is probable that better prices will rule, for there has been a decided increase in consumption, witness the extended manufacture of telegraphic cables, which are largely composed of copper. There were imported into Liverpool,

Swansea and Loudon, during 1870, 60,652 tons fine of copper. The quotation for ore on Dec. 31st was \$3.12½ per unit.

STATE UNIVERSITY.—The Board of Regents met on the 7th inst. It was decided to purchase the portion of the Brayton estate necessary to complete the square on which the preparatory departments of the University are situated, for \$20,000; also to proceed with the erection of the Agricultural College building until the basement is completed. Dr. Taylor, of Santa Barbara, offered to sell to the University his manuscript copy of the Bibliography of California. The proposition was referred to the Committee on Libraries.

DURING the last fifty-one years, seven and a half million immigrants came to the United States.

MECHANICAL PROGRESS.

WEIGHT AND SHORT STROKE FOR HIGH SPEED.—The *Engineering and Mining Journal* prints a paper, read by Chas. T. Porter at a late meeting of the Polytechnic Club of the American Institute, which attracted much attention. He took the ground that the reciprocating parts of an engine, at the instant when the direction of their motion is reversed, exert a force which is precisely the same centrifugal force that would be exerted by them continually if they were revolving with the crank. Therefore, by combining rapid speed and short stroke with considerable weight in these parts, their centrifugal force may be developed to whatever extent we choose, and, if it is in excess of the force of the steam, the engine with the steam turned on, becomes in effect a rotary engine. We have not space for Mr. Porter's demonstration, but give his conclusion:—"The crank passes the centers under a strain not wholly relieved; the force of the steam does not reach the crank at these points, but is absorbed in the mass, and is afterwards gradually imparted to the crank during the stroke. The value of this action it is difficult to estimate too highly. By means of it the shock of the steam on the centers is avoided wholly or in a degree, the excessively intermittent pressure caused by working steam at a high grade of expansion is transformed, as by magic, into a steady and uniform rotative pressure on the crank, the fly-wheel is relieved of its most trying offices, the shaft from the excessive torsion in alternate directions that is produced by its action, and a smooth and gliding movement is attained, with a closer approximation to uniform motion than the crank has been supposed to be capable of giving. It is curious to observe how exactly opposite to the truth all the engineering traditions on this subject turn out to be. We have been taught that the reciprocating parts of an engine were passive on the centers, that the great difficulty encountered in the attempt to employ high speed was the necessity of reversing their motion, that they should therefore be made as light as possible, and long strokes should be employed, so that the changes in the direction of their motion might be as few as possible. Now we know that their centrifugal action on the centers is all important to a high speed engine, and that to render this most serviceable we must employ considerable weight and a short stroke. The field is a large one; I limit myself to the fundamental principle which I have endeavored to explain. This being established, all theoretical objection to the employment of high speed vanishes. When the dead center is stripped of its imaginary terrors, we must perceive the dawn of a new day in the history of the steam engine."

STEEL TIRES UNDER BRAKES.—It has always been understood in Prussia, that cast-steel tires should not be applied to wheels running under brakes. "The cast-steel tires, when checked by the brake and skidding upon the railway, get very hot by friction; in pulling up in a pool of water, a heap of snow, or even in a keen draught of wind, a cast-steel tire may, under such circumstances, get a hard chill or brittle temper, and, being so injured and deprived of elasticity, it may break at any time, either while running free or under a brake, and that without giving previous sign of existing danger." So says a correspondent of the *London Engineer*.

CHLORAL HYDRATE IN PHOTOGRAPHY.—The *Photographische Archiv* mentions, that to freshly prepared and slightly colored collodion (iodo-bromized) one per cent. of chloral hydrate was added. With a neutral silver bath it gave a good white film. The developer consisted of sulphate of iron and acetic acid. The plates were considerably more sensitive than those prepared without the chloral hydrate. The plates worked very clean.

IMPROVEMENTS IN PROJECTILES.—"An English device consists in applying the projective force by means of an annular cartridge approximately to the center of gravity of a hollow cylindrical or tubular projectile, instead of, as is usual, at the base; a rotary motion being, if desired, imparted to the projectile by rifling it externally and internally. The projectile or shot is in the form of a hollow cylinder, thus destroying the vacuum in the rear of the shot, and is of the same internal diameter throughout its length and for part of its length, such part being the rear end of the shot, of the same thickness."—*Sci. American*.

PROGRESS IN IRON SMELTING.—The following is a condensed extract from an article in *Engineering Progress* for Jan. 6, under the head "Engineering Progress, 1866-70":—"A few years ago the experience of iron smelters seemed to indicate a tendency to an almost unlimited increase of sizes of blast furnaces and temperature of blast. With a view to economy of fuel, furnaces exceeding 100 ft. in height have been built in the Cleveland district, and hot blast stoves have been set to work, which are capable of sending a blast of 1200 degrees and more into the furnace. The researches of Mr. Isaac Lowthian Bell have thrown a new light upon this subject, and the blast furnace has become an object of investigations, which will probably effect a beneficial change from routine to scientific management in iron smelting works. Mr. Bell has pointed out that there are certain limits to the sizes of furnaces and temperature of blast, which cannot be exceeded with beneficial results as regards economy of fuel. Mr. Bell's researches are still in progress, and they promise to become the foundation for a new and complete theory of the blast furnace, hitherto the least understood of all metallurgical branches. The records of the Patent Office show an entirely new train of thought underlying a great number of recent specifications referring to metallurgical inventions. The reductive influence of carbonic oxide and other gases which form the internal atmosphere of a blast furnace, is applied to the reduction of iron ores in many ways hitherto unattempted. Experiments are being conducted to bring these ideas to a practical test, and a new road of progress is being vigorously followed as a consequence of the new theories recently propounded. The researches above referred to are confined to the question of economy of manufacture, and principally economy of fuel."

UTILIZING WASTE HEAT FROM STEAM BOILERS.—A Vermonter has patented a method which consists in having a second boiler, filled with bisulphide of carbon, which boils at about 110 Fah., and heated by the exhaust steam from the first boiler. The vapor of the bisulphide of carbon was condensed in a short copper coil immersed in a tank of water, and pumped back into its boiler with no perceptible loss. To each boiler is attached an engine. The *Scientific American* notes a trial as follows: "The pressure in the steam boiler having been raised to 45 pounds, the steam engine was started, raising with the derrick a weight of 500 pounds. In five minutes after, the pressure in the bisulphide boiler went from 0 to 30 pounds to the inch. At this time the second or bisulphide engine was started, geared to a derrick, and commenced raising a weight of 500 pounds in the same manner that the steam engine was doing. The two engines were kept running simultaneously two hours, and during this time the steam engine made 38,000 revolutions, and raised 500 pounds 456 feet, while the bisulphide engine made 44,000 revolutions, and raised 500 pounds 528 feet. The pressure in the steam boiler ranged from 30 to 70 pounds to the inch, averaging about 45 pounds, and the pressure in the bisulphide boiler ranged from 30 to 60 pounds, averaging about the same as that of the steam boiler."

PEAT—THE OTHER SIDE.—It is but fair that we now quote a single word on the negative side of the question. The *Boston Journal of Chemistry* for February, says: "Dry compressed peat affords less than one half the heat afforded by anthracite coal of equal weight; and it has the disadvantages of giving off an exceedingly unpleasant odor, and leaving a huge mass of light and troublesome ash. It cannot be dug out, dried, and compressed for any sum that will bring it into competition with coal, and therefore it is preposterous to give the matter any further attention. There has been lost by victims of the peat delusion, in New England alone, nearly a million of dollars, and this has gone into the pockets of the owners of 'patent peat machines,' and speculators interested in keeping up the excitement."

TOUGH IRON.—The spathic iron furnaces in Plymouth, which draw from the only large mine of this peculiar ore in the United States, make iron so tough that a hundred sledge hammer blows are required to break a bar of the pig, while ordinary iron can be broken by half a dozen. They use this year nine thousand cords of hard wood in charcoal, and make six tons of iron a day.—*W. S. R. R. Register*, Dec. 24th.

SCIENTIFIC PROGRESS.

DARWIN'S LATEST.—Appleton & Co. give extracts from advance-sheets of Darwin's new work on "The Descent of Man" &c. We quote: "The early progenitors of man were no doubt once covered with hair, both sexes having beards; their ears were pointed and capable of movement; and their bodies were provided with a tail, having the proper muscles. Their limbs and bodies were also acted on by many muscles which now only occasionally reappear, but are normally present in the *Quadrumanus*. * * The most ancient progenitors in the kingdom of the Vertebrata, at which we are able to obtain an obscure glance, apparently consisted of a group of marine animals, resembling the larvae of existing Ascidians. These animals probably gave rise to a group of fishes, as lowly organized as the lancelet; and from these the Ganoids, and other fishes like the *Lepidosiren*, must have been developed. From such fish a very small advance would carry us on to the amphibians. We have seen that birds and reptiles were once intimately connected together; and the *Monotremata* now, in a slight degree, connect mammals with reptiles. But no one can at present say by what line of descent the three higher and related classes, namely, mammals, birds, and reptiles, were derived from either of the two lower vertebrate classes, namely, amphibians and fishes. In the class of mammals the steps are not difficult to conceive which led from the ancient *Monotremata* to the ancient *Marsupials*; and from these to the early progenitors of the placental mammals. We may thus ascend to the *Lemniscide*; and the interval is not wide from these, to the *Simiade*. The *Simiade* then branched off into two great stems, the *New World* and *Old World* monkeys; and from the latter, at a remote period, Man, the wonder and glory of the Universe, proceeded."

TUBERCLE GERMS.—We take the following from an article by Lionel S. Beale, F. R. S., which we find in the *Bowdoin Scientific Review*:—"There is reason to think that particles of living growing tubercle exist sufficiently minute to be supported by the atmosphere and carried long distances; while there are many facts which are considered by some sufficiently conclusive to justify the opinion that tubercular disease of the lungs is at least in some instances contagious. And it is certain that the most recent observations in connection with the subject of the nature and mode of propagation of tubercle, so far from militating against this view, tend rather to support it."

FUSION OF IRIOSMINE.—The following is one of the items of scientific news presented at a late meeting of the Polytechnic Club of the American Institute:—Mr. M. G. Farmer, of Boston, has succeeded in fusing iridosmine by a current of voltaic electricity from sixty large Bunsen cells. Grains of the mineral were placed in a groove made in charcoal, each end of which was connected with a large platinum wire. The temperature of fusion was estimated at about 10,000° Fahrenheit. His object was to obtain a pure alloy of iridium and osmium, to be used in electric illumination. On bringing one square inch of the alloy to near the fusing point, by means of an electric current, he found the light emanating from its surface equal to 2,800 candles. This new light threw shadows at midday, and had sufficient actinic power to produce excellent photographs.

GLYCERINE EXTRACT OF PEPSIN.—A short time ago Von Wittich published in *Pflüger's Archiv* some interesting results of an attempt to isolate, by means of concentrated glycerine, pepsin and other so-called ferments found in animal and vegetable bodies. The mucus membrane of a pig's stomach, washed and freed as much as possible from water, was finely minced and bruised, and then covered with pure glycerine. After standing twenty-four hours, a few drops of the glycerine, diluted with acidulated water, digested fibrin with remarkable rapidity. After pouring off the whole of the glycerine, a second, third, and even fourth glycerine extract could be made, all manifesting strong peptic powers. On treating, after filtration, these glycerine extracts with a large excess of alcohol, a slight precipitate was obtained, which, separated by filtration and re-dissolved in acidulated water, though giving only the faintest proteid reaction, was strongly peptic. In a similar manner sali-

vary gland and pancreas gave up to glycerine a starch-converting ferment; and almonds a ferment capable of acting on amygdalin.—M. Foster says, in *Nature*, "We certainly have in glycerine a new means of working out the intricate problems of these so-called ferments. The means hitherto adopted of preparing the so-called pepsin for medicinal purposes are confessedly clumsy and inefficient. By glycerine we can now extract, without any trouble whatever, a pure palatable peptic liquid, one which apparently will last any length of time."

FRANKLAND ON SPONTANEOUS GENERATION.—In *Nature* of Jan. 19th, Dr. E. Frankland details some experiments recently undertaken by him to refute the arguments of Dr. Bastian, who maintained that he had seen living organisms generated from non-organized matter, while Prof. Huxley considered that such a conclusion was not admissible, and declared that the motion of the particles was not proof of life. Prof. F. half filled four glass tubes with a liquid consisting of carbonate of ammonia 15 grs., phosphate of soda 5 grs., and distilled water 1 oz. The tubes were then hermetically sealed and exposed for four hours to a temperature of 155° to 160° C., in a digester; then cooled, and plunged, two of them into concentrated sulphuric acid, and the other two into a saturated solution of carbolic acid. This was to prevent the possible admission of atmospheric germs through invisible cracks in the glass. On Dec. 24th, five months after, during which the cylinders containing the immersed tubes were kept at a temperature of 60° to 70° F., two of the tubes, one from each liquid, were opened in the presence of Prof. Huxley and Mr. Busk, and the contents examined with the greatest care under the microscope. Particles such as Dr. Bastian saw were seen in active movement; and his language is in fact quoted by Dr. Frankland in description thereof. "But," says Dr. F., "the movement of the particles which we observed was obviously mere Brownian motion; and many of the particles were evidently minute splinters of glass. There was not the slightest evidence of life in any of the particles. The water on the slide containing these solid matters was evaporated off, and they were treated with hot concentrated sulphuric acid, the temperature of the slide being raised to about 100° C. There was no blackening, and the rounded and dendritic bodies remained as entirely unaltered as the glass splinters. Indeed, some of the larger spheroidal bodies were evidently rounded particles of glass which had become detached from the inner walls of the tube by the corrosive action of the enclosed liquid at the high temperature to which it had been exposed in the digester."

PROF. YOUNG'S ECLIPSE OBSERVATIONS. Prof. C. A. Young, who observed from Jerez, Spain, writes:—" * * But the most interesting spectroscopic observation of the eclipse appears to me to be the ascertaining at the base of the chromosphere, and of course, in immediate contact with the photosphere, of a thin layer in whose spectrum the dark lines of the ordinary solar spectrum are all reversed. Just previous to totality, I had carefully adjusted the slit tangential to the sun's limb at the point where the second contact would take place, and was watching the gradual brightening of 1474 and the magnesium lines. As the crescent grew narrower, I noticed a fading out, so to speak, of all the dark lines in the field of view, but was not at all prepared for the beautiful phenomenon which presented itself when the moon finally covered the whole photosphere. Then the whole field was at once filled with brilliant lines, which suddenly flashed into brightness and then gradually faded away until, in less than two seconds, nothing remained but the lines I had been watching. The slit was very close, and the definition perfect. * * This observation is a confirmation of Secchi's continuous spectrum at the edge of the sun, and I think tends to make feasible the original theory of Kirchhoff as to the constitution of the sun and the origin of the dark lines in the ordinary solar spectrum."

THE YALE ROCKY MOUNTAIN EXPEDITION.—Sillman's *Journal* for February, says: "The expedition was as a whole very successful, and the large collections made will be placed in the Peabody Museum of Yale College. The more important scientific results will soon be published."

CORRESPONDENCE.

Notes of Travel in Merced County.

[Written for the Press.]

Snelling.

Suelling, the county seat of this county, is situated on the north side of Merced river where the foot hills set in, about 65 miles from Stockton. Its population is about 650. There is a strip of country about 10 miles wide and extending north to the Tuolumne river, that was segregated as mineral land by the original government surveyors, but has since been surveyed and approved by the general government, and the land is now open to pre-emption and homestead. This land was thought to be worthless for anything except grazing until last year. Two years ago this spring, Mr. A. B. Anderson (who is the proprietor of the Galt House, Snelling) as an experiment, summer-fallowed 100 acres of this land, and in the Fall following sowed it in barley, from which, at the last harvest, he gathered 2,300 bushels; and he has just now completed sowing 800 acres of the same kind of land in barley.

From a high point on his land (which I visited), can be seen 20 distinct settlements, nearly all of which have been put up within the last 8 months. Mr. A. gives it as his opinion that this is the surest land for a crop of cereals of any land in the San Joaquin valley, from the fact that it always rains more here than on the level plains. He has sowed, as an experiment, this season, about an acre of the celebrated Norway Oats, and promises that you shall hear the result.

Complicated Fine Ranch.

H. F. Buckley & Bro's. ranch, situated 7 miles south-west from Snelling, and about 1½ miles from Hopeton, is one of the finest I have visited this side of San Joaquin county. It is known as the *Merced Stock Farm*. It contains 1,654 acres, and cost its present proprietors \$27,500. There are 12,000 grape vines, 1,500 peach trees and 2,000 apple trees upon the ranch. Last year, 300 acres of corn were sown, producing 60 bushels to the acre. In good seasons it has produced, and will again produce, 100 bushels per acre.

It is stocked with about 4,000 head of Cotswold sheep, about a quarter of which are thorough-bred, and the remainder is made up of ¼, ½, and ¾ thorough-bred. They expect this year to increase the number to 10,000 head by importation and increase. To go into the pedigrees of even some of this large band, would take more room than the space you allow me for this communication. Suffice it to say that the progenitors of this band have been imported by these gentlemen at great expense, and to those wishing to purchase thorough-bred Cotswold sheep, they need look no further than this ranch.

These gentlemen, together with Mr. J. M. Stroug, proprietor of Coulter's hotel, Snelling, and John L. Strong, of Anaheim, Los Angeles county, (and late of Memphis, Tenn.) will put in 300 acres upon this farm this season in cotton. As the latter named gentleman is thoroughly posted upon this subject, and is furnishing you with intelligent articles upon the matter, I shall not attempt to argue the cotton question, except to explain a few terms used, and answer a few questions as they have been given me.

Objections to Cotton Culture Answered.

My answers to objections will simply be quotations from published statistics of cotton raisers south. The first objection is, it cannot be raised here at all on account of the cold nights, and early frosts. In answer to this, it has been raised here by Mr. J. M. Strong, of Snelling, for three successive years, producing last year at the rate of over two bales per acre (a bale, Liverpool standard, is 443 lbs). While the nights are sometimes cool here, the ground is always warm. As to early frosts, in the Cotton States the average killing frost is about the 10th of October, while here we seldom have any until sometime in Dec.; and, again, it is necessary for the killing of the leaves, where the cotton grows very rank, so as to give the bolls a chance to ripen.

The remaining objections are, that the yield is not sufficient here, nor the staple as long, or the fibre as fine. Cotton pretenders in this country assert, when asked

what an average yield is in the south, "about a bale to the acre." Now, the convention of cotton raisers at Memphis, Tenn., in May, 1869, (which was represented by over 1,000 cotton raisers from all the states south), said that it requires three acres on the average to produce a bale of cotton. The average staple (which is the length of fibre) in the south, according to the same authority, is ¾ of an inch. I have measured it here from a variety of bolls, and it runs from ¾ of an inch to 1¼ inches. Lastly, as to the fineness of fibre, from promiscuous specimens sent from here, cotton commission merchants south pronounce it full middlings. A lot of 1,200 lbs. sent from here to your Oakland manufactory, was stated to be superior to anything they had ever worked, except one lot from the upper Sacramento river, although they were importing from half a dozen countries.

Mr. John Ruddle owns and cultivates, some 400 or 500 acres of very fine land situated between Hopeton and Snelling. Next adjoining him on the N. E., is the ranch of Silas March, containing nearly 1,000 acres. From the looks of his fine residence, he intends to make it his future home. J. J. Montgomery, Esq., is probably the largest land owner in the county. One of his fields is several miles square, all under fence. His speciality is cattle. Skelton, Turner & Co., and Simon Jacobs & Co. are the principal merchants here in Snelling.

Freaks in Nature.

Louis Hadlich, farmer and stock raiser, residing one mile west from Hornitos, in the adjoining county, had a ewe sheep that a few weeks since gave birth to a mammoth lamb weighing 20 lbs. The mother and lamb both died in a few moments afterwards.

J. M. Strong, of Snelling, has just been presented with a chicken, which I shall denominate a hermaphrodite, in the absence of a better term. This fowl is complete in both sexes. It has the comb, and spurs of a rooster, and crows like one; it also lays eggs as regularly as a hen but by trial it has been found that the eggs will not hatch. Please to set your scientific men after this extraordinary fowl.

Merced Falls Woolen Factory.

Merced Falls, 5½ miles from Snelling, on the Mariposa road, is quite a lively little place, and is where the Merced Falls woolen factory is situated. The capital stock of this company, paid up, is \$75,000, all held within the vicinity, except about \$1,500. A. Ingolsby is President and manager. The mill is run by water, from the Merced river. The manufacturing department is superintended by Messrs. Rector & Torr; 36 men and women are regularly employed; some by the day, the balance by the piece. It has been in operation, under its present management, but about 5 months. For the month of Jan. they manufactured 4,161 yds. of flannel, which will wholesale for about 45 cts. per yard; also 4,433 yards of cassimeres, which will wholesale about \$1.00 per yard; and 328 pairs of blankets, worth \$7.50 per pair. When running in their capacity, about 33 per cent. more can be manufactured.

L. P. Mc.

A Huge Manufactory.

[Written for the Press.]

How it Looks and What it Contains.

EDITORS PRESS—Thinking that a few lines concerning the great glass and iron manufacturing center, Pittsburgh, Pa.,—said to be the second city in wealth in the Union,—would be of interest to many readers of your valuable paper, I send you a short account of matters and things as seen through the "optics" of your humble servant.

On last Monday I beheld the noted "Smoky City" for the first time in ten years, and as I had just come from the rural districts of "way down East," my ideas of its cleanliness were not as elevated as they might be. As it was midnight when I arrived, I fully realized the saying of a Boston journalist—James Parton—on seeing the city by night, that it "looked like hell with the lid off." Surely it is a novel and interesting sight, and its like perhaps is not to be seen elsewhere in the United States; and the Bostonian may be pardoned for his trite saying when he beheld around him the lurid flames leaping from hundreds of stacks and chimneys, and heard the puffing of immense engines, the clanking

of powerful machinery and the thud and pounding of ponderous hammers,—hammers capable of striking a blow so light that a watch placed on the anvil might have the crystal broken without injuring the works, or a blow which has the crushing effect of ten or twenty tons, if desired.

To the observant stranger, Pittsburgh presents many things of a curious and interesting character, and no sensible person can look upon them without feeling that he is a wiser if not a better man. Here may be seen rolling mills, glass houses, old forts, a new city hall, handsome bridges, bridges worthy of antediluvian fame, coal pits vertical, and coal mines horizontal, foundries for big guns, a big depot and a bigger elevator, boat houses and celebrated boatmen, sporting men, good and bad, and a penitentiary warranted to reform the most hardened of sinners. It is often styled the Birmingham of America, and I think justly so. It will be remembered that here was cast the largest guns used in the rebellion, such as the Floyd, the Union, the Swamp Angel, and many others. Here also is the great Southern depot for the supply of coal.

Coal—Polished Iron.

Besides the coal used by the different manufactories that have their own coal mines, there was shipped, during the last year, the enormous amount of sixty millions of bushels. The mines being worked at present are those in which the veins of coal run horizontal, from the fact that they can be worked at much less expense than those vertical. Along the sides of the hills, on either side of the river, may be seen queer-looking holes, entrances to these subterranean caverns from which these "black diamonds" are taken. Inclined planes are run from the mouths of the pits to the river below, and, as a consequence, boats are loaded with ease and at small expense. I cannot give statistics of the amount of iron, steel and glass manufactured, but they are, I am assured, quite large. One manufactory—the American Iron Works, of Ormsby Borough, valued at some five millions of dollars,—is capable of turning out, annually, about 50,000 tons of finished iron and nails. If we reduce this to a lesser denomination, it presents the startling amount of one hundred millions of pounds. Connected with this establishment is a machine shop, 450 feet in length by 150 feet in breadth, where one of the specialties of the works,—polished iron,—is manufactured in all its branches. It is secured by letters patent, and has already proven to be of immense value. The old process of polishing iron was by the slow and costly way of hand-power, while by this method everything is done by machinery at fully one-fifth the cost, and, it is claimed, of a superior character. The process is simply immersing the iron in a steam acid bath, and then rolling it between heavy rolls, the same as when hot, a few minutes only being required to polish a heavy bar to the brilliancy of a mirror. It is said that rolling the iron cold improves its texture, making it closer and stronger. These works employ about three thousand men, and their pay-roll often reaches \$200,000 monthly.

Glass—Queer Stories.

In the manufacture of glass,—window and flint ware,—McKee Bros. returned last year \$500,000, and McCully & Co. a like amount. Hussey, Wells & Co., steel works, make a showing of one million dollars; and in copper, C. G. Hussey & Co. foot up a like amount.

This city claims the honor of being the first in this country to erect works for the manufacture of glass, steel and copper; and for the manufacture of these great staples of commerce, including iron, I have not seen, in the many thousands of miles that I have traveled, any other place approaching a comparison.

Many queer stories are told regarding the dirt and smoke of this place, such as, "at noonday, looking at the sun, it appears like a patch of red paint;" and "when a woman loses her child upon the street, in searching for it, if she finds a stray urchin, she has to wash the little one to know whether it is her own or some other person's." These stories have arisen from the fact that there is constantly hanging over the city a dense cloud of smoke, arising from the bituminous coal used by the manufactories, and also that everything outdoors is blackened and begrimed, to a greater or less extent, for the same reason.

J. H. DAVIS.

Pittsburgh, Jan. 18th, 1871.

A Remarkable Body of Water.

Prof. T. P. Stelle gives the following interesting description (in the *Am. Jour. of Microscopy*) of what he saw in the water of a lake in Central Florida.

I turned my attention to the water, and was soon convinced that I had, undoubtedly, met with a phenomenon, for it was so clear, so very transparent, that I could see through it in every direction with as much apparent ease as if it had been the atmosphere itself. Presently I saw one of the inhabitants hinted at, a little creature of a light brown color, looking, as it glided here and there, through the pure element, not unlike a common chimney swallow. Then came another, and another, and another, until all the waters of the lake seemed to be thickly swarming with them. They were very busy and very swift in their motions, darting, whirling, and angling with the greatest ease and the most charming grace; the guide said that like birds of the air they were in quest of their prey, feeding upon animals too small to be seen by us from our standpoint.

Suddenly, while I was gazing in wonder upon these strange creatures, a new actor appeared in the person of a larger animal, about the size, shape, and color of a huge musk melon. He was quite transparent, so much so that I could see through and through him as plainly as if he had been a glass jar; and as he moved leisurely about I noticed that he was catching and devouring the little "swallows" without mercy. His interior, which seemed to be a huge cavity—nothing more—was literally filled with them, some still alive and swimming about in their strange prison. The entire mass held within his gigantic stomach kept up a rapid whirling round and round in one direction, from which I inferred that he had no regular digestive organs, but simply wore out his food; that is, reduced it by friction to a proper condition for his sustenance.

Scarcely had I got fairly interested in this extraordinary animal, when along came something which looked, with its slim, arching neck, very much like a swan. Its course was so directed that ere long it was brought into contact with the "musk melon," and a fight was the consequence. It was a short fight, however, for neither of the parties seemed to relish the business, so they separated and struck off in opposite directions. A little distance, and the "swan" met another of its own kind, and they commenced billing and cooing like two mated doves; but their pleasures were destined to be of short duration, for just at that instant a large and hideous looking creature, with great horns and glaring eyes, pounced upon them from a covert hard by, seizing them both. A terrible struggle ensued, in the course of which one of the "swans" made its escape, but the monster gripped the other fiercely by its slender neck until it ceased to struggle, after which he settled down with it to the bottom of the lake, and very quietly began converting it into a meal.

About this time I noticed a second monster, equally as frightful in appearance as the one just referred to, though evidently of a different species. He was moving along on the bottom of the lake, and, unless his course were changed, would pass very near the other. The first monster's treatment of the "swans" had made me his enemy, so I was well pleased with the turn affairs showed a prospect of taking; I desired that his banqueting should be disturbed. And it was. The new comer found him, and went in for a share of the prey. A battle, the most frightful that I had ever before witnessed between two living creatures, immediately commenced. They seized each other and rolled over and over in a real death struggle, for several minutes, in the course of which they actually tore each other limb from limb. Finally, one of them yielded up and died, after which the other, with but two legs left out of six, dragged itself slowly away. And another installment of animals, some like gigantic leeches, and others like Oriental turbanes, and all effecting locomotion by stretching and pulling themselves into every conceivable shape, settled down and fell to regaling themselves upon the carcasses. They wore, doubtless, the vultures of this remarkable body of water.

A NEW TUNNEL MACHINE, built at the Fulton Iron Works, has just been completed. It is of large size with four drills. It was designed by the Diamond Drilling Machine Company for work on the Blue Gravel Company's tunnel near Smartsville. A trial last week was most satisfactory. We shall speak of it again at greater length.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, Feb. 4th:—The Schenectady mine looks far better than ever before. The last 20 feet of drift in Monitor No. 3 shows good ore. Fine ore exposed in the Hercules, while blasting for Glohe Co.'s ditch. The same lode was then found in the main tunnel drift, and averaged over \$15 per ton by assay.

TARSHISH.—*Chronicle*, Feb. 4th:—We visited this mine yesterday. Tons upon tons of rich ore lay in the drift, 150 feet above the lower tunnel. The Co. have evidently got into an immense deposit of ore, extending from the point where the connection was made in the shaft to the upper tunnel, a distance of one hundred feet, and extending into the mountain to an indefinite distance. Few mines in the States show better.

MOUNT BULLION.—This tunnel is in 1700 feet. The rock is harder than usual. One hundred feet further will bring it to the Wellington—the main ledge of the Company.

THE GLOBE'S REDUCTION WORKS.—The work on the mill is progressing—the whistle sounded for the first time on Thursday evening. The rest of the machinery is being put in position as rapidly as possible, but the non-arrival of the settlers has retarded operations.

AMADOR COUNTY.

GOOD CLEAN UP.—*Ledger*, Feb. 11th:—The amount of gold obtained from 250 tons of quartz from the Kennedy mine, worked at the Mahoney mill was twenty dollars per ton. This does not include the sulphurets saved which were very rich.

A BIG PROSPECT.—Belding, Hatch & Co.'s shaft is fifty feet deep, and they have a vein of good rock seven feet wide. On the "dump" was three hundred tons of quartz, every piece of which showed more or less rich sulphurets with here and there free gold.

GOING TO WORK AGAIN.—Cosumnes Copper Mining Co. are making preparations to resume operations at Forest Home. They have levied an assessment and contracted for seven hundred cords of wood. We learn that works for reducing their ore at the mine will be put up.

GOOD HOPE MINE.—*Dispatch*, Feb. 11th:—The principal shaft is 80 feet down, where the ledge is three feet wide, well defined, and increasing. The rock now prospects \$18 to \$20 per ton by mortar-crushing.

CALAVERAS COUNTY.

NEW MILL.—*Chronicle*, Feb. 11th:—Clark's quartz mill at Railroad Flats is completed. The battery of eight stamps is to be run by water power. One hundred tons of rock have been already hauled to the mill and a large quantity will be ready as soon as facilities for crushing are afforded.

GLENCOE.—Cor. of same:—The Glencoe Co. are opening a very large quartz lead. Mr. Garland, of Lower Rich Gelch, has made several prospects, at different depths and I have heard it estimated that forty dollars to the ton is the average. The shaft is down thirty feet. An extension of three thousand feet has been taken up, with some heavy names attached to it. The Sam. Braunan lead, a mile north-east, has been reopened, a tunnel having been run to the main lead. The Co. are timbering their tunnel for permanent work. Belding & Co., have sunk a shaft twenty feet deep, on the old Chapman ranch, in a very extensive lead, which prospects satisfactorily from the surface. They have taken out several tons of rock which they propose to crush at their mill at Railroad Flat.

EL DORADO COUNTY.

NINETY-THREE DOLLARS TO THE PAN.—Placerville *Democrat*, Feb. 11th: On Saturday a rich strike was made in the Cedar Spring Tunnel, on Cement Hill. The deposit is gravel and cement, and the spot so rich—ninety-three dollars to the pan—is 800 feet in the hill from the mouth of the tunnel.

THE QUARTZ HILL CLAIMS.—The mines on Quartz Hill, known as the Porphyry Claims, are doing well. It is rumored that the claim of S. Lemons is paying well. The lode is a part of the original Hodge & Co. lode. Our quartz interests are looking up. Considerable prospecting is going on.

SPANISH HILL.—The hydraulic claims of Varozza & Co., and the Blair brothers, are doing well.

ROBERSON.—This mine, owned by Sher-

wood, Roberson & Co., has now a 10-stamp mill, and improved machinery, and is successfully worked through a 100-foot shaft. Fifty car-loads are hoisted daily.

DAVIDSON MINE.—The *Folsom Telegraph* says: "We were shown a few days since some very rich specimens of rock from the Davidson claim at the depth of three hundred feet. This claim is on the same ledge with Pocahontas claim, which is paying largely. A mill is shortly to be erected on the Davidson also. This claim is six miles from Shingle Springs.

INYO COUNTY.

CERRO GORNO.—*Independent*, Feb. 4th: Judge Hannah writes us concerning the Buena Vista Tunnel and the Jefferson mine: "The tunnel is 536 feet in length, with 800 feet of track in tunnel and drifts, the whole costing \$7,000. About 100 feet apart in the side drifts of the tunnel are two cuts across the ledge, in one of which it proves to be from 40 to 50 feet wide, and in the other they have run 30 feet and are not yet through the metal. It is one solid mass of mineral. Within the past two weeks, in making these prospects, they have extracted 400 tons of ore." The same in speaking of the Jefferson ledge, says: "The shaft is down 150 feet, which has paid every foot from the roots of the grass to the bottom, the ledge being from 10 to 20 feet in width. The Buena Vista tunnel taps the ledge 300 feet below the surface. This ore will average from 50 to 70 per cent., while assays resulted in finding it to be worth from 100 to 125 ounces of silver per ton.

DEEP SPRING.—Cor. of same: The Blue Bird has a 60-foot tunnel; the ledge showing plain all the way. On the dump they have twelve or fifteen tons of ore, worth \$400 to \$500 per ton. The Cinderella is 6 to 8 feet thick, and has a 30-foot shaft. Hiskey and Walker of the Deep Spring M. & M. Co., are building a verberatory furnace.

MONO COUNTY.

BRIDGPORT.—Cor. of the *Record*: "Operations on the Dunderberg mine have been suspended until improved machinery for amalgamating can be erected at the mill. Mr. Nieder, the new amalgamater, having worked a few tons by the present apparatus, considers it very imperfect.

NEVADA COUNTY.

THE SEASON.—*Transcript*, Feb. 7th: The season, notwithstanding the discouraging beginning, is likely to prove better than the last. Up to Sunday night the rain fell, according to the gauge at the office of the South Yuba Canal Co., was 25.75 inches. Last year, up to the 9th of February, the total was only 25.55. The storms of the last few days, have enabled some miners, heretofore unable, to start up.

Same of 9th says the snows are deep in the mountains, and will be a source of water supply in the spring. With plenty of rain during the remainder of the season, the yield from hydraulic mining will be larger than for many years.

NORTH BLOOMFIELD.—Same of 10th: The Gravel Mining Co. are running 1,500 inches of water in their new ditch, and still prospecting in the channel at Malakoff. It is expected that the tunnel from Humbug creek to open this ground will be started next fall.

GOOD PROSPECT.—*Gazette*, Jan. 9th: The Filibuster Co., above Hennessee's, have connected the deep prospecting shaft on their gravel claims by a bed rock tunnel. Near the point of intersection they drifted out eight feet square on the bed rock, and obtained \$20 from the gravel.

EUREKA MINE.—*Grass Valley Union*, Feb. 6th: Yesterday was the regular melting day, and the proceeds of the last twelve days' run of the mill were put into three hars of beautiful gold, valued in round numbers at \$38,000. The last six days' run gave \$22,000 of the amount.

REGULARLY AT WORK.—Same of 8th: The Baltic Co., on Squirrel creek, have commenced gravel washing. The Co. have made arrangements to have a supply of water all the time.

PLACER COUNTY.

ST. PATRICK.—*Herald*, Feb. 11th: The shaft on this mine is the deepest in Placer County, south of Colfax, it being down over 200 feet. We are told by a former owner, that they have now a drift along the ledge at the 200-foot level twenty or thirty feet long which shows quartz for the whole length that will average \$100 per ton by mill.

GOOD PAY.—Fifty-two tons of quartz from the Buckeye mine was crushed at the Empire Mill last week which yielded \$1,800 in free gold, an average of about \$35 per ton.

AGAIN CRUSHING.—The Baltimore Quartz mill of Graves & Putnam has been again pounding away this week, and intended to

make a second clean up yesterday. The previous crushing was not entirely satisfactory, from the want of more perfect gold-saving attachments.

MONTANA.—We were informed by Mr. Lobner, from Colfax, that this Co. have their steam hoisting works completed, the shaft pumped dry, and are rapidly going down on the ledge. The shaft is down 86 feet. This is a ledge six feet wide.

IOWA HILL.—*Stars and Stripes* Feb. 9th: Readers may remember the rich gravel deposits in the Morning Star mine, and crevice, eighty feet deep, several feet in width and a hundred feet in length, which was astonishingly rich but caved in and filled up last summer. Since that time the debris has been cleared away and a side drift run for prospecting purposes. We are informed that last week this drift struck into a large body of very rich gravel, in which coarse gold is visible in every direction to a height of five or six feet from the bed rock.

PLUMAS COUNTY.

FROZEN UP.—*Quincy National*, Feb. 4th: A friend from the East Branch informs us that the miners are all idle waiting for "a thaw." The season has been the coldest known for many years. There is a large quantity of snow on the mountains however, and the boys anticipate a good run as soon as spring commences.

"ELIZABETHTOWN."—Blakesly, Braden & Co., are making their claim pay "big." We are informed that for five days this week, with two men they cleaned up twenty-five ounces. One sack, holding three paus of dirt, "panned out" about twelve ounces, some of the pieces weighing twenty dollars.

MINING.—*Chico Enterprise*, Feb. 11th: Henry Bidwell, the superintendent of the Union Mine, near Greenville, Plumas County, writes to his father that since his return home he has cleaned up over 200 ounces of amalgam, the result of work done in his absence, amounting to \$2,000, being an average of \$25 to the ton of rock crushed.

SHASTA COUNTY.

FLUME DOWN.—*Courier*, Feb. 4th: The rain storm, on the 27th ult., broke down the main flume on Ludwig's & Fochler's Piety Hill ditch. The damage cannot be repaired short of a thousand dollars. A number of miners who depend on this ditch for water, will be seriously inconvenienced.

SIERRA COUNTY.

ITEMS.—*Democrat*, Feb. 9th: The Pioneer Co. at Grass Flat, Northern Sierra, have got through the hard rock, and are getting along fast with their tunnel. The Smith Brothers are getting good prospects in Slug Cañon.

TULARE COUNTY.

The Visalia *Delta* of Feb. 8th says that a man by the name of Sawyer living on Wilcox cañon, a branch of Cottonwood creek, twenty miles North-east of Visalia took a notion to prospect for gold in the gulch near his house and as the result of three days' work, brought into town fifteen and a half pennyweights.

TRINITY COUNTY.

INDIAN CREEK.—*Journal*, Feb. 11th: Mr. Silcox is crushing at his mill on Indian Creek, two tons per day. He has made no clean up yet. The owners of the north extension of the Silcox & Smith ledge are prospecting for the vein. They have tunneled in one hundred and fifty feet.

GONE TO WORK.—Nichols & Hartham have gone to work on Keno Flat near Junction City, with flattering prospects.

Nevada.

ELY DISTRICT.

ITEMS.—*Record*, Feb. 9th:—The Washington, or No. 9 Co., are down on the main shaft 145 feet and are having it well timbered. The Raymond & Ely Co. is getting along swimmingly. The Burke is yielding its usual amount of ore, which is improving in quality, and keeps the 10-stamp mill at Bullionville at work. The Creole, helouging to the same Co. has arranged matters with the parties who had contracts on the ledge, and are now preparing to work it themselves. The Gen. Washington has been shipping considerable ore to the Big Smoky mill at Hamilton, also to the Chicago mill now building at Bullionville.

We believe the owners have until the 1st of March to extract what they can, when the mine will pass into the hands of other parties. The Meadow Valley Co. are shipping on the average 50 tons of ore per day to their mill at Dry Valley, and their average shipment of bullion is \$50,000 per week. The contract on the Washington, taken by Daly and Doody, will expire with the rest. A rich pay streak has been struck on the ledge, which by the time the contract expires will pay the parties hand-

somely for their labor. The Juniper claim, owned by Church & Co., has struck another vein of rich ore. The Bowery owners keep steadily at work taking out pay ore of the best in the district.

BULLION.—Same of 5th:—The shipments of the Meadow Valley Co. for the week ending 3d inst., amount to \$41,718.13. The amount shipped by the Raymond & Ely Co. during the week ending 6th, \$2,4000. Shipped by Phillips, \$1,472.57; by Courtney, \$1881.11. Courtney, Flood and Co. shipped 6 bars valued at \$11,913, making total for the week, \$80,564.81.

EUREKA DISTRICT.

TAYLOR'S SILVER WEST.—*Sentinel*, Feb. 11th:—This furnace has been running for the last week to the satisfaction of the owners. The capacity is four tons of bullion per day, and the arrangements are as perfect as the work could be made. The ore to be worked will be from Taylor's own mine, the Silver West, and he has made arrangements with the owners of the Bullwhacker to smelt three thousand tons for them.

FURNACES.—This place needs 20 additional furnaces. There are many mines here that will produce ore that will make \$300 bullion, that are not worked because the ore cannot be sold.

RICH BULLION.—We believe that the richest bullion ever smelted in Nevada was made by Ogden, Dunne & Co. For the whole week they were making bullion that would exceed \$500 in value, and on Friday and Saturday, they made three tons that assayed \$1,231 per ton.

HUMBOLDT.

The *Silver State* of Feb. 11th says the Pioneer Mill is now running again on Inskip ore.

RYE PATCH.—Cor. of same:—The day has come when low grade ores of \$40 and \$50 per ton can be made to pay by the Akin process. The mill at Rye Patch, running five stamps crushes 7½ tons of ore per day.

REESE RIVER.

BULLION FROM MONTEZUMA.—*Reveille*, Feb. 10:—Ten hars of the value of \$6,000, brought to town day before yesterday, were the product of the new mill of McGlew, Dawley & Co. The mill has been running one month, during which it has produced silver to the amount of \$20,000.

WASHOE.

OPHIR.—*Enterprise*, Feb. 12th:—The "uprise"—a steep upward incline—has now reached the height of 190 feet above the drift from which it started. A heavy body of clay has been struck, and quartz is looked for soon.

CROWN POINT.—The raise from the 1,100-foot level looks well. The whole face is in good ore. It has reached 135 feet above the track floor. The south drift from the 1,000-foot level is progressing favorably. It is yet 60 feet north of the raise from the 1,100-foot level. The connection between the two will be made in about two weeks. The bullion yield of the mine for January was \$32,000.

YELLOW JACKET.—*Gold Hill News*, 11th:—The mine is yielding 130 tons a day, from the 800, 900, and 1,000-foot levels. Average assay from car samples, \$61. The 1,000 and 1,100 foot level drifts are still progressing at a good rate, northward, although slower than if there was a circulation of cool air.

SAVAGE.—The daily product is 125 tons from the third and fifth levels of the old mine and the second, eighth and ninth levels of the new mine. A great amount of prospecting is being done.

HALE AND NORCROSS.—The yield 225 tons per day, 200 of which is from the eighth level—the lowest depth yet obtained in the mine. Within the last two days an excellent body of ore has been cut on the lowest level 100 feet south of the shaft, in a portion of the mine heretofore considered barren.

IMPERIAL-EMPIRE.—In this they are still sinking main shaft for a new level at 1,400 feet. A prospecting drift for the Holmes mine is in 240 feet. The old upper levels of the Imperial are yielding sixty tons per day.

VIRGINIA CONSOLIDATED.—They are still pushing the northwest drift in the direction of the old Central mine.

SIERRA NEVADA.—The mine is yielding the usual ore. The mill is running constantly upon the ore. Sacramento and Meredith mill started up on it day before yesterday. The affairs are most encouraging.

HOPE.—The Hope mine and mill, Silver City, was shut down day before yesterday. The company is badly involved in debt in every direction as well as to the workmen.

CHOLLAR-POTOSI.—The Chollar-Potosi continues its most excellent yield, the Belvi-

dere section holding out splendidly. The January receipts were \$276,606.65.

OVERMAN.—The Co. are now taking out sixty tons per day, principally from the 226-foot level.

SEGREGATED BELCHER.—Little will be done until after the starting up of their mill on the river, as their ore dump is full.

DANEY. The drift from the engine shaft was yesterday in 63 feet. The rock continues quite hard.

GOULD AND CUNNY.—The daily yield continues as usual. The January receipts were \$17,014.24.

Arizona.

BRADSHAW.—Prescott *Miner*, Feb. 4th: Recent discoveries of rich and extensive silver mines in this District have greatly excited our community, and the result is a great rush to that locality. Dud Moreland and others returned last week, with five hundred pounds of the ore. As high as fifteen hundred ounces of silver, per ton of rock, were obtained, and the lowest assay exceeded eight hundred. The principal mine—the "Tiger"—is a well defined lode, cropping out continuously for nearly three miles, and in places where the ledge can be fairly seen, showing a width of six feet.

ITEMS.—In Hassavampa district, the placer mines are yielding handsomely. Some work is being done on the Davis lode. From Lynx creek we learn that parties are working on an extension of the Vernon. It is rumored that several extensive purchases of mines, in various portions of the Territory, have been recently made, chiefly by English Capitalists.

Colorado.

JIM CREEK.—Boulder *News*, Feb. 1st:—S. T. Turbleson is at work on the Christie and Yankee Blado lodes. Willard & Co., are down 35 feet, with a four foot crevice. Jesse Ora and Joe McPherson, are working the Mammoth lode for Pratt & Co. They have commenced a fifty foot shaft. Keen & Stanley on the Nodaway lode, have a four foot crevice.

GOLD.—Hiram Fullen's lode at the head of Akin's gulch, in Gold Hill District, yields under stamps from 10 to 12 oz. of gold to the cord, and has a four foot crevice.

ITEMS.—Central City *Register*, Feb. 8th: Mr. Martin treated 800 pounds of ore from the "Devil's Grip" lode in his pans and got over five ounces of gold. Root, Hall & Queen, yesterday struck some very rich gravel in their drain drift. Several pans full washed down at the rate of fifty cents to the pan. A later notice says the streak is likely to be permanent. At present it is paying an ounce of gold to every foot in length of the drain which is five feet in width. Two nuggets were taken out yesterday, one weighing 21 dwts. and the other 28.

GOLD SHIPMENTS.—The shipment yesterday, by J. Chaffee & Co., amounted to \$15,000 in currency. The R. M. National Bank shipped Monday, \$4,000. This week's shipments amount to \$34,000.

CARBON MINE.—Cor. of same:—Up to Jan. 1st, this mine yielded 450 tons of shipping ore, worth \$76,989, or \$171 per ton, nearly. This is good; but the real value of this mine consists, not in its rich ore but in its large amount of low grade. There are on hand 500 tons of fourth-class ore. Then the dump piles contain a considerable amount, as none of this class was saved till this season. By careful measurement, there are exposed 34,440 cubic feet of ground yet in the mine above the 2d level ready for stopping at any time without further expense. And from this level to the bottom of the shaft, there are 32,795 cubic feet. This total of 67,235 cubic feet at the usual estimate of 11 solid cubic feet to the ton, amounts to over 6000 tons. This 6,500 tons at \$20, over all expenses,—estimated from carefully averaged assays,—makes with the 450 tons already sold, the production and promise to date, \$207,000.

GEORGETOWN ITEMS.—*Miner*, Feb. 9th: Since our last the Stewart has shipped silver bullion to the value of \$4,739.90, coin. Last week the Brown shipped a "but-ton" weighing 611 lbs. Troy, valued at \$9,530 coin. The shaft on the Napoleon lode has reached a depth of 199 feet, and the tunnel to intersect it a distance into the mountain of 166 feet. Since our last report the German Reduction Works have shipped four bars of bullion. These aggregate in value \$1,616.49, coin. We have been shown the returns from 2,352 lbs. of ore from the Pelican lode. The price per ton paid was \$279.60, and the total net return \$468.60.

QUAKEN LODGE.—While drifting was going on, 6 1/4 tons ore gave, at the works of Hupeden & Co., \$568 coin. The net profit was \$200 over and above all costs.

CASCADE DISTRICT.—Capt. Griswold, on

the Bald Eagle lode, has a 15-inch pay vein. Assays as high as \$10,000 per ton have been obtained. Adams & Co. in the Ella Kimball, have a 30-foot shaft, and an 80-foot tunnel. The 1st. class ore runs 450 ounces per ton. J. G. Thorn employs one man on the Alps lode, who takes out, with Giant powder, one ton per day of ore worth \$200.

LAKE COUNTY.—The Pilot, one of the free gold lodes, has recently produced some very rich pay dirt, one pan of which yielded 57 ounces of gold. The Printer Boy lode, without affording much dirt so rich as that, is perhaps the better lode, as all the crevice material contains more or less gold. The ore from these lodes is easily treated, being "puddled" and the resulting gold cleaned up from the puddling boxes.

THE CLIFT MINE.—A rich body of ore, one foot in breadth, consisting of royal pay and rock coated with native silver, has been uncovered in the mine where the walls are well defined and stand about six feet apart.

Idaho.

THE BASIN.—The Idaho City *World* says: We have had several severe though welcome snow storms. About a foot, in the aggregate, has fallen during the past five days, and we learn that at Summit Flat and near the head of Elk creek the snow is 8 1/2 feet in depth. A few more such storms will provide us with sufficient snow to warrant a lively mining season.

OWHYEE BULLION.—*Aralanche*, Feb. 4th: Wells, Fargo & Co. shipped from here this week 17 bars of bullion, valued at \$37,239.50, making the total for the month ending to-day, \$166,185.50.

SNAKE RIVER.—*Democrat*, Feb. 4th: Messrs. Moore, Silvy, Lewis and Johnson, started on Thursday for Snake river. Many parties are leaving for those mines, and the indications are that much work will be done during the coming season.

Montana.

QUARTZ.—*Helena Gazette*, Feb. 5:—We were informed yesterday that silver quartz had been struck at Jefferson which turned out \$1,500 per ton in the furnace.

PHILLIPSBURG.—Cor. of same:—The mill works all the quartz from the Hope without assorting. A claim in the new mines, on Rock Creek, changed hands yesterday for \$300 cash. The Cable mill is paying well, we are told. We learn that this wonderful mine is looking better than ever. The two tunnel companies, the Miners' and Mechanics', and the Cameron, are pushing their shafts as rapidly as possible.

The Deer Lodge Independent of Feb. 4th says a large force is working in the Cable mine. A drift for draining the lode is to be run at once. The tunnel is in 500 feet. The Mechanics' tunnel is in 900 feet.

ITEMS.—*Missoula Pioneer*, Feb. 2d: Miners on Spring Bar, Quartz Creek, have struck 50 cents to the pan, and the bed-rock is still pitching into a supposed back channel. Miller, O'Brien & Co., on Nos. 32 and 33 in the gulch, are 31 feet down. They expect to reach bed-rock in about 5 feet more. In these claims gold has been got from the grass roots down. Other companies will commence work as soon as spring opens.

FOREST CITY.—Cor. of same:—An undivided one-sixth interest in the five claims from 67 to 71, inclusive, was sold a few since for \$3,500.

New Mexico.

LA MESILLA.—Cor. of Santa Fé *Post*, Feb. 4th: Prof. Low is at Silver City assaying with astonishing results from *La Providencia* mines; scarcely an assay goes below \$1,600 to the ton. It is reported that the Harpending Co. will commence operations at Ralston within a month; also that there is a big mill on the way from St. Louis to Silver City. Carson's mill will be on the ground by the 1st of May.

Oregon.

EAGLE CREEK DITCH.—The Baker County *Democrat* says that C. M. Foster, U. S. Surveyor of mining lands in Eastern Oregon, has staked out sixteen miles of the main line of the ditch. It will be twenty-two miles in length, and run three thousand inches of water in the Shanghai, Rooster and Powder river slope mining districts. Work will be commenced as early as April.

QUICKSILVER MINING GRANT.—Letters patent of the United States to the X. L. C. R. Mining Company, more commonly known as the Redington Quicksilver Mining Company, have been received at the Land Office in this city. The deed conveys lot 37 of township 11 W., range 4 E., and embraces 4,200 linear feet in the quicksilver mining district of Lake county.—*Marystville Appeal*.

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Feb. 16.

The Mining Share Market has been quite irregular the past week, the fluctuations in several prominent descriptions being considerable. On the 10th, the following incorporations paid their monthly dividends: Chollar-Potosi, \$140,000; Golden Chariot, \$60,000; Hale & Norcross, \$40,000; Meadow Valley, \$60,000; North Star, \$9,000; Yellow Jacket, \$48,000. The Chollar-Potosi paid an extra dividend of \$5 per share on the 15th. The Eureka Consolidated have declared their first dividend, \$1 per share, payable on the 20th.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Feb. 9. Highest. Lowest. Feb. 16. Adv. Dec.				
Alpha.....	84	4	4	1
Belcher.....	14	15	15	1
Chollar-Potosi.....	75	70	71	—
Crown Point.....	42	36	35	—
Eureka Cons.....	12	13	13	1
Golden Chariot.....	83	77	78	—
Gould and Curry.....	40	41	39	—
Hale and Norcross.....	98	99	97	—
Ida Elmore.....	11	12	10	—
Imperial.....	7	7	5	—
Kentuck.....	20	27	25	—
Meadow Valley.....	29	29	25	—
Ophir.....	4	7	4	—
Orig. Hid. Treas.....	3	3	3	—
Overman.....	5	5	5	—
Savage.....	39	42	37	—
Sierra Nevada.....	14	14	12	—
Yellow Jacket.....	41	42	39	—

Latest Mining Stock Prices.			
[S. F. Stock and Exchange Board.]			
BID. ASKED.		BID. ASKED.	
Alpha Cons.....	84 3/4 320	Ida Elmore.....	10 1/2 10
Amador.....	31 3/4 320	Imperial.....	6 1/2 6
Belcher.....	13 3/4 14	Kentuck.....	28 29
Chollar-Potosi.....	70 3/4 71	Occidental.....	4 1/2 4
Crown Point.....	35 3/4 36	Ophir.....	5 1/2 6
Duncy.....	—	Orig. Hid. Treas.....	3 1/2 3 3/4
Empire Mill.....	—	Overman.....	4 1/2 4 1/2
Eureka.....	70	Savage.....	38 38 3/4
Golden Chariot.....	—	Silver Wave.....	— 3 1/2
Gould & Curry.....	39 40	Sierra Nevada.....	12 12 1/2
Hale-Norcross.....	96 97	Yellow ket.....	40 1/2 41

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY	OF SALE.
Allegany, Sierra Co., Dec. 27, 50c.....	Jan. 27	Feb. 13	Mar. 13
Argenta, Nevada, Dec. 17, 50c.....	Jan. 19	Feb. 17	Feb. 17
Cherokee Flat Blue Gravel, Feb. 4, \$5.....	Mar. 10	Mar. 28	Mar. 28
Confidence, O. H. Feb. 6, \$3.....	Mar. 13	Mar. 21	Mar. 21
Continental, W. P., Dec. 31, \$1.....	Feb. 6	Feb. 27	Feb. 27
Deer, Nevada, Jan. 10, \$1.50.....	Feb. 14	Mar. 4	Mar. 4
Dance Spring, Lugo Co., Co., Jan. 14, \$1.....	Feb. 25	Mar. 4	Mar. 4
Eagle Quicksilver, S. Bar, Co., Feb. 8, \$20.....	Apr. 4	Apr. 10	Apr. 10
El Refugio, Santa Cruz Co., Jan. 18, 65c.....	Feb. 21	Mar. 14	Mar. 14
Imperial, O. H., Feb. 1, \$10.....	Mar. 7	Mar. 24	Mar. 24
Kentuck, O. H., Jan. 17, \$17, \$10.....	Feb. 20	Mar. 10	Mar. 10
Little A. Co., Feb. 31, 10c.....	Feb. 6	Feb. 27	Feb. 27
Kincaid Flat, Toul. Co., Jan. 12, \$2.50.....	Feb. 16	Mar. 4	Mar. 4
Mammoth, W. P., Jan. 31, 10c.....	Mar. 10	Mar. 31	Mar. 31
Marble Falls, Nye Co., Nev., Feb. 6, 25c.....	Mar. 7	Mar. 27	Mar. 27
Maxwell, Amador Co., Dec. 21, \$2.....	Feb. 7	Mar. 7	Mar. 7
Nevada, Nevada, Jan. 19, 25c.....	Feb. 20	Mar. 13	Mar. 13
Noonday, Nevada, Jan. 19, 25c.....	Feb. 23	Mar. 17	Mar. 17
Orig. Hid. Treas., T. P., Jan. 31, \$1.....	Mar. 6	Mar. 31	Mar. 31
Placer, Co., Dec. 13, 40c.....	Feb. 5	Feb. 27	Feb. 27
Ophir, Virginia City, Jan. 11, \$2.....	Feb. 14	Mar. 7	Mar. 7
Placer, Placer Co., Jan. 4, \$6.50.....	Feb. 15	Mar. 11	Mar. 11
Sec. Belcher, G. H., Jan. 14, \$2.....	Feb. 16	Mar. 8	Mar. 8
St. Patrick, Placer Co., Dec. 27, \$1.....	Feb. 1	Feb. 20	Feb. 20
Taylor, El Dorado Co., Jan. 31, 50c.....	Mar. 6	Mar. 27	Mar. 27
Virginia, W. P., Dec. 17, 50c.....	Jan. 23	Feb. 14	Feb. 14
LATEST DIVIDENDS.—(Within Three Months.)			
Black Diamond, \$ per ct.....	Payable Feb. 5		
Chollar-Potosi, \$5.....	Payable Feb. 10		
Chollar Potosi, \$5.....	Payable Feb. 15		
Eureka, \$2.....	Payable Feb. 7		
Eureka Cons., \$1.....	Payable Feb. 10		
Golden Chariot, div., \$5.....	Payable Feb. 10		
Hale & Norcross, div., \$5.....	Payable Feb. 10		
Meadow Valley, div., \$5.....	Payable Feb. 10		
North Star, \$3.....	Payable Jan. 10		
Sierra Nevada, div., \$1.....	Payable Jan. 16		
Yellow Jacket.....	Payable Feb. 10		
*Advised in this journal			

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, FEB. 17, 1871.	
IRON.—Duty: Pig, \$7 per ton; Railroad, 60c @ 100 lbs.; Bar, 1 @ 1 1/4c @ lb; Sheet, polished, 3c @ lb; common, 1 1/2 @ 1 3/4c @ lb; Plate, 1 1/2 @ 1 3/4c @ lb; Pipe, 1 1/2 @ 1 3/4c @ lb; Galvanized, 2 1/2 @ 3c @ lb.	
SCOTCH AND ENG. Pig Iron, @ ton.....	\$34 @ \$35 50
White Pig, @ ton.....	32 @ 33 00
Refined Bar, bad assortment, @ lb.....	— @ —
Refined Bar, good assortment, @ lb.....	— @ —
Boiler, No. 1 to 4.....	— @ 1/4c @ —
Plate, No. 5 to 9.....	— @ —
Sheet, No. 10 to 13.....	— @ 1/4c @ —
Sheet, No. 14 to 20.....	— @ —
Sheet, No. 24 to 30.....	— @ 1/2c @ —
COPPER.—Duty: Sheathing, 3 1/2c @ lb; Pig and Bar, 2 1/2c @ lb.	
Sheathing, @ lb.....	— @ —
Sheathing, Yellow.....	— @ 26
Sheathing, Old Yellow.....	— @ 11
Composition Nails.....	— @ —
Composition Bolts.....	— @ 21
TR. PLATES.—Duty: 25 @ cent. ad valorem.	
Plates, Charcoal, IX, @ box.....	12 00 @ —
Plates, I C Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs, @ lb.....	— @ —
STEELE.—English Cast Steel, @ lb.....	— @ —
QUICKSILVER.—@ lb.....	— @ —
LEAD.—@ lb.....	— @ —
Sheet.....	— @ —
Pipe.....	— @ —
Bar.....	— @ —
ZINC.—Sheets, @ lb.....	— @ —
BORAX.....	— @ —

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, February 17, 1871.	
Sugar, crushed, @ lb.....	14 1/2 @ 15
Do. Hawaiian.....	9 @ 12
Coffee, Costa Rica, @ lb.....	21 1/2 @
Do. Rio.....	18 1/2 @
Ref. Japan, @ lb.....	65 @ 1 00
Do. Green.....	60 @ 1 10
Walrus Rice, @ lb.....	8 @ 9
China Rice, @ lb.....	8 1/2 @ 9 1/2
Coat Oil, @ gallon.....	65 @ 7 1/2
Candles, @ lb.....	14 @ 18
Ordnance Butter, @ lb.....	30 @ 35
Ranch Butter, @ lb.....	25 @ 35
Butter, @ lb.....	25 @ 35
Cheese, California, @ lb.....	9 @ 16
Eggs, @ dozen.....	12 1/2 @ 13 1/2
Lard, @ lb.....	15 @ 17
Lard and Bacon, @ lb.....	15 @ 17
Shoulders, @ lb.....	9 @ 10

Retail Prices.	
Butter, California, fresh, @ lb.....	40 @ 50
do. pickled, @ lb.....	20 @ 25
do. Oregon, @ lb.....	20 @ 25
Cheese, @ lb.....	20 @ 25
Honey, @ lb.....	25 @ 30
Eggs, @ dozen.....	41 @
Butter, @ lb.....	18 @ 25
Lard and Bacon, @ lb.....	12 @ 15
Ordnance Butter, @ lb.....	75 @ 1 00
Potatoes, @ lb.....	2 @ 3
Patatoes, sweet, @ lb.....	— @ 2
Tomatoes, @ lb.....	— @ 2
Onions, @ lb.....	2 @ 3
Apples, No. 1, @ lb.....	4 @ 5
Pears, Table, @ lb.....	5 @ 6
Pistons, dried, @ lb.....	10 @ 12
Peaches, dried, @ lb.....	10 @ 15
Oranges, @ dozen.....	50 @ 75
Lemons, @ dozen.....	50 @ 75
Chickens, aptec, @ lb.....	75 @ 1 00
Turkeys, @ lb.....	— @ 75
"Nap. Pale and C. O.....	10 @ 10
Soup, Cassile, @ lb.....	15 @ 20

PRODUCE, ETC.	
Flour, Extra, @ bbl.....	7 00 @ 7 25
Do. Superfine.....	6 00 @ 6 25
Wheat, @ 100 lbs.....	2 25 @ 2 45
Oats, @ 100 lbs.....	1 50 @ 1 70
Hay, @ 100 lbs.....	1 25 @ 1 45
Beans, @ 100 lbs.....	1 00 @ 1 25
Potatoes, @ 100 lbs.....	1 00 @ 1 25
Hay, @ ton.....	10 00 @ 12 00
Live Oak Wood, @ cord.....	10 00 @ 12 00
Beef, extra, dressed, @ lb.....	2 00 @ 2 50
Hops, on foot, @ lb.....	6 @ 6 1/2
Hogs, dressed, @ lb.....	7 1/2 @ 8

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, Feb. 16.

SOLE LEATHER.—Shipments to the east still continue large, and several tanners have advanced their price one cent per lb.

CALF AND KIP SKINS.—There is no change in French stock, the exportation being extremely light. Domestic skins continue firm, with a tendency to advance.

Best French Calf Skins, @ doz..... 75 00 @ 100 00

Common French Calf Skins, @ doz..... 35 00 @ 75 00

French Kips, @ lb..... 1 00 @ 1 30

California Sheep Skin, @ doz..... 60 00 @ 75 00

California Calf, @ lb..... 1 00 @ 1 25

Eastern Wheel Stuffed Calf, @ lb..... 80 @ 1 00

Eastern Bench Stuffed Calf, @ lb..... 1 10 @ 1 25

Eastern Calf for Backs, per lb..... 1 15 @ 1 25

Sheep Roans for topping, all colors, @ doz..... 8 50 @ 13 00

Sheep Roans for linings, @ doz..... 6 50 @ 10 50

California Sheep Skin Linings..... 1 75 @ 6 50

HARNESS LEATHER.

Fair Bridle, @ lb..... 33 @ 40

Skirting, @ side..... 4 50 @ 4 75

Welt Leather, @ doz..... 30 00 @ 50 00

Buff Leather, @ foot..... 22 @ 26

METEOROLOGICAL OBSERVATIONS

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D.

Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N., Long. 121° 29' 44" W. Height of Levee above mean low tide, at San Francisco, 74 feet. Height of lowest surface of mercury, 34 feet. The amount of cloudiness is designated by figures, 10 being entire cloudiness; 5, half cloudiness; 0, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 4 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from three daily readings at A. M., 2 P. M., and 9 P. M., in uniformity with the arrangements of the Smithsonian Institution.

1871.	DAILY MEANS OF		TEMP.		WIND.		RAIN.	
MONTH	Bar.	Therm.	Max.	Min.	Dir.	Force.	Amount.	Direction.
AND DAY.	Bar.	Therm.	Max.	Min.	Dir.	Force.	Amount.	Direction.

FEBRUARY.	INVS.	DEW.	WIND.	RAIN.	TEMP.	WIND.	RAIN.
Sunday.....	5.30	41.0	5.50	70	25.5	0	1.0
Monday.....	6.30	38.5	49	55	22.8	0	1.0
Tuesday.....	7.30	35.5	40	52	19.5	0	1.0
Wednesday.....	8.30	38.5	41	56	19.5	0	1.0
Thursday.....	9.30	42.1	51	64	26.6	0	1.0
Friday.....	10.30	54.2	50	67	23.7	0	1.0
Saturday.....	11.30	63.1	45	63	22.2	0	1.0

*Thermometer at Rain.

REMARKS.—Cloudy and foggy weather has prevailed more or less during the entire week, which, with the absence of strong northerly winds, has secured the full benefit, for the growing crops, of the light rains that have fallen.

The rain-fall of the week sums up 0.411 inches, to fall the thousandth of an inch more from fog and mist on the 9th, must be added—making the total for the season, up to date, exactly 4 inches.

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 473 Broadway street.

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Steventon street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14y20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

FENCING THE TRACK.—The California Pacific Railroad Company is now engaged in fencing in the whole line of their track: the occasion of the work being the recent decision of the Supreme Court, holding railroad companies responsible for damages done to cattle killed upon any track not fenced in.

The Young of Oysters.

EDITORS PRESS:—I noticed in one of your late numbers that you assert that by opening an oyster and examining the liquor retained in the shell with a microscope, you can see many small oysters, covered with shells, swimming nimbly about. Well, you please inform your careful readers how they get there, and when they are set free by their mothers to take care of themselves; and if there are male and female oysters; if so, how do they multiply. This is a very interesting subject, and one but little understood. J. B.

San Francisco, Jan., 1871.

The oyster was formerly considered hermaphrodite; but it is now known that it is of separate sexes—the females largely predominating in numbers. They are ovoviviparous—they produce a living fetus, by excluding it from an egg covering. The eggs are expelled in a white, viscid fluid, called "spats" (common to all shell fish). This substance adheres to marine bodies and to the parent shells; by thus accumulating one upon another, immense banks of oyster beds are sometimes formed.

As the fish are all stationary, fecundation is effected through the medium of the water, which conveys the sperm to the ova. The eggs, as already intimated, are to a certain extent developed before being ejected by the female; and sometimes, after being ejected, instead of becoming fixed to the outside of the shell, or to some other neighboring body, they continue to float about until they are accidentally received within the cavity of the shell of the adult oyster, in the process of respiration. Here they often continue until developed, as described in the paragraph to which our correspondent refers.

There is a species of small crab that often finds its way within the shell of the oyster in the same manner. Neither the young oyster nor the crab can form any portion of the food of the adult oyster, as the softness of the mouth of the latter does not admit of its attacking any resisting substance, alive or dead. When the crab or young oyster becomes large enough to annoy the adult oyster, it is summarily ejected. The young oyster is attached to its bed first by the glutinous nature of the fluid in which its partially developed ovals enveloped; and when once fixed, a calcareous growth from the shell itself, perfects and permanently fixes the union.

A NOVEL WAY TO ALLAY HUNGER.—It is said that the hunters of Siberia, when hard pressed by hunger, take two thin pieces of board, and placing one on the pit of the stomach and the other on the back, gradually draw together the extremities, and thus allay, in some degree, the cravings of appetite. A similar practice is known among the South Sea Islanders. This is supposed to be a very economical kind of board.

PHOTOGRAPHS WANTED.—The publishers of the SCIENTIFIC PRESS and of the RURAL PRESS, being desirous of retaining more accurately in their memory the lineaments of their correspondents to whose interesting articles they feel deeply indebted, propose instituting a "Correspondents' Gallery," and therefore would be most pleased to receive the photographs of any and all of those who communicate with the papers. It is not proposed to "publish" these photographs at present, but it will be most pleasant to have the faces where they can be looked at, and where any reader or writer, on calling at the office, may have an introduction to those with whose ideas he or she has become acquainted. Will our many kind friends oblige us in this matter?

THE CHANGE OF COLOR IN LEAVES.—The Athenæum says: "Experiment has confirmed the conclusion that leaves turn red, at the end of the season, through the action of an acid, since one of the elements producing the green color must be a vegetable blue. Autumnal leaves, placed under a receiver, with the vapor of ammonia, in nearly every instance lost the red color, and renewed their green. In some, such as blackberry and maple, the change was rapid, and could be watched by the eye; while others, particularly certain oaks, turned gradually brown, without showing any appearance of green."

An Improved Flour Mill.

In our great wheat-producing state, any device which has to do with the production or treatment of this important staple is of interest. There is a gentleman, who thinks that he has an invention which will be particularly valuable to our farmers, as well as to others who need grinding machinery. An illustration of this invention is here given. It is called the "Iron-Clad" mill, and is constructed with a view to simplicity and efficiency. It has comparatively few pieces, small weight and great strength; and is said to grind better and faster than the common kinds.

As to its work, we give one example. We have a letter from Mr. M. A. Gee, of the North-Western Flour mills, at Milwaukee, and this we publish with a few unimportant alterations. The gentleman writes:

After a trial of four months, notwithstanding my strong prejudice at the beginning, I am delighted with the Iron Clad. We tested it by running it by the side of a very choice 4-foot buhr, both on the same wheat. We would try first the one and then the other. The facts are simply

let them down, and when run out, shut up the spout and let the mill run empty for hours, don't meddle with the lighterscrew, and yet get no dull stone. I consider this remarkable. Again, the motion being rapid, it bleaches out the middlings and makes them whiter than does any other stone I ever saw.

We shall be very glad to see any one who wishes to see the Iron Clad in operation, and will take pleasure in answering any questions in reference to it.

Mr. Geo. Littlefield, miller, witnesses to the correctness of these statements. The agent for the mill, who may be addressed for any further particulars, is Mr. J. A. Forsman, 70 South Canal street, Chicago.

California Sugar Making.

EDITORS PRESS:—The success of the Alvarado beet sugar works in placing upon the market an excellent grade of white, granulated sugar, at a cost that successfully competes with the sugars of the refiners, very naturally tends to awaken a lively interest as to the future of this great industry—Whether the five millions of dollars that are now paid annually for sugars to

the enterprise is sure to succeed, and then a better expenditure of the money can be made in using the \$20,000, in a whole and perfect apparatus from the start, than in the use of the half first, and then adding the other half to the inadequate machinery of the first year.

What the country wants, is a way by which the small farmer, with his own melon patch, can make all the sugar he consumes, if only brown sugar, and have a surplus to dispose of.

These brown sugars could be collected by the refiners and converted into the best white sugars. Then all interests would be subserved, and a new and exceedingly profitable industry introduced, that would soon tell upon the prosperity and wealth of the state.

Farmers can even make their brown sugars from melons at an expenditure of \$1,000 or less for equipment; but they must know how to make it; how to obtain the juice free from the rind and pulp; how to defecate the juice by the use of lime; and then how to take the lime from the concentrated juice, without the use of costly apparatus for carbonic acid, necessary in beet sugar making by the Alvarado process.

A melon sugar establishment upon some of our reclaimed lands, as, for instance, Sherman Island, at a cost of \$20,000, would not only demonstrate the complete practicability of an extension of similar enterprises all along the alluviums of our valleys; but would also pay two and a half per cent. per month upon the entire cost, including land, the first year, and better than that in years following.

I am ready to put money and my whole time into an enterprise of this kind, should there be others who will unite with me:—First, to promote our own pecuniary interests, and then, indirectly, the prosperity of the whole state.

I would have it a model sugary; a sugary of interest and instruction to all desirous of extending successfully this new and important industry. W. WADSWORTH.

Sacramento, Feb. 1870.

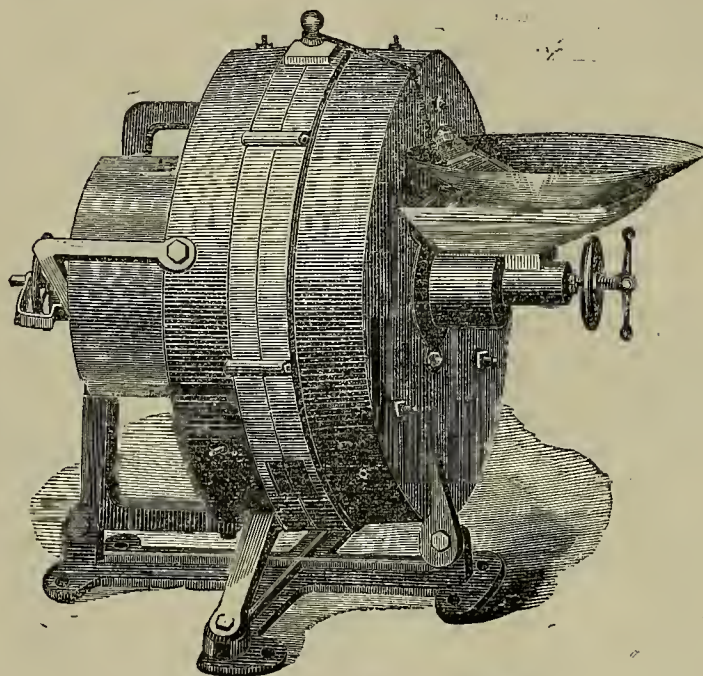
A GOPHER HOLE.—A gopher burrowed his way through the massive embankment of the new reservoir of the San Jose Water Company, and as a consequence the water commenced to find its way through the hole. The leak was discovered and the gopher killed, but he had already done his work. The great pressure of the water in the reservoir soon enlarged the small aperture to the size of a man's body, and the reservoir was soon emptied and all the land below it flooded. Several weeks time will be required to make repairs and fill up the "gopher hole." In the mean time, however, the city will receive its regular supply of water from the reservoir.

VEGETABLE PROFITS IN MASSACHUSETTS.—A correspondent of the Boston Cultivator reports his success in raising vegetables, four miles from a village. The two requisites adhered to were good soil and thorough cultivation. The entire grounds were a few acres, and a small part was occupied. —Half an acre of peas gave seventy-eight bushels (in pod of course) at \$1.90 per bushel, or \$148.20. Sweet corn amounted to \$70 from half an acre. Two hundred hills of pole beans gave \$50. Over \$300 were received in less than three months.

AMERICAN MECHANICS may feel a bit proud over the fact that some of our gun manufactures are now filling large orders for Russia, and that fifty Yankee mechanics have just departed for that country to take charge of government shops. England also sends over heavy orders for the Gatling gun, and Prussia and France are drawing constantly on the inventive genius of our craftsmen.—Sac. Bee.

CHEESE IN NEW YORK.—Cheese manufacture in New York State is growing to stupendous proportions; 1,200 factories are already in operation.

CENTRAL CITY, Colorado, is taking measures for a water-supply. It is estimated that an adequate supply can be obtained at an expense of about \$3,000.



FORSMAN'S "IRON CLAD" FLOURING MILL.

these: We can flour in the 4-foot buhr 15 bushels of No. 1 spring wheat per hour; with the Iron Clad we can flour 20 bushels of the same. This is with a full head of water. When the water gets so low that we cannot run the 4-foot stone, we can take it off, throw on the 30-inch Iron Clad, and run all day and night, making 1 bbl. of flour per hour; and the flour seems to be just as good as when running full head.

We have taken samples of flour to our regular Chamber of Commerce Flour Inspectors from both the 4-foot and the Iron Clad, and in every case the choice has been that of the latter. Not to stop here, we have taken the flour to the Board of Arbitrators appointed by the Chamber for their decision, with the same result. And as a still further test, we have had the flour from each stone baked by some of our most experienced bakers, and the Iron Clad is still ahead.

From 3 to 7½ lbs. less wheat are required to the barrel of flour with the Iron Clad, than with the 4-foot stone. This is a very important item, as every man accustomed to running a flour mill will readily see.

These experiments have not been made in a hasty manner, but the facts given are the results of very careful and very fair tests, giving the 4-foot stone all the opportunity possible. Again, it has not been for a day or a week, but right along every day.

To keep the Iron Clad in order does not require one-half the attention which is necessary with the ordinary mill. It runs equally well when grinding 5 bushels and when grinding 20 bushels per hour; this is not the case with any other mill I ever knew. In regard to grinding middlings it cannot be beat in the U. S. When we get ahead on middlings, we open the spout and

supply our wants, shall continue to flow away from us, to foreign countries; or whether within three years from this, California will be the producer of all she consumes and a large supply for a vast country east of the Sierras.

The works at Alvarado conclusively show that with the use of a large capital, ranging from \$100,000 to \$200,000, white sugar, equal to the best of the refiners' goods, is made and sold at a large profit. But the large capital required to make sugar upon this plan, entirely precludes the possibility of sugar making becoming that general industry that it would, if it could be prosecuted upon a capital within the scope of the small farmer's means, or an association of a few for that purpose.

One great item of cost in operating a beet sugary, is the transportation of the beets from the fields where grown, unless in close proximity to the sugary. Companies should always own land to the extent of six hundred or a thousand acres, in the immediate vicinity of their sugary. This almost necessarily involves the use of large capital to operate beet sugaries successfully.

It is not so with sugar from melons. An establishment for melon-sugar making need not cost more than \$10,000; but if it is proposed to enlarge the works after the first year, provided it proves a success, it would be far better that the original first investment be \$20,000; because, in the first place,

HOUSEHOLD READING.

A Few Hints About Cooking Game.

The following hints about cooking game-birds is taken substantially from *Hearth and Home*: The cooking of game is extremely simple, as very few kinds require a force-meat; stuffing and the sauce is easily made. The longer game is kept, provided it is not stale, the better—and it is better kept in the feathers and skins until just before cooking. When the feathers come off easily, the birds may be considered ripe for the spit or oven. Be very careful not to tear the skin while taking off the feathers. After removing the feathers, pass the blaze of a lighted white paper over the outside surface to singe off the hairs, which, if allowed to remain, would show very distinctly after the birds are roasted. Be careful in drawing the birds, and they will require very little washing. The less they are washed the better flavor they will be.

Do not soak game in salt and water, as recommended by some. They say, "It is to take out the game flavor." If the game flavor is undesirable, soaking in salt and water would not remove it. But the game flavor is just what epicures like. The heads of the birds, with the neck, should be cleaned, the eyes removed, etc., and skewered to the side of the wing and roasted with the game. This process distinguishes the bird from domestic fowls when it comes to the table. No stuffing is required. Sometimes wild ducks may have a mild force meat of bread crumbs soaked in port wine; but it is not usual. Put no water in the pan, but baste the birds every few minutes with butter and the gravy that runs from them. Woodcock or snipe are prepared for the roast without drawing or opening them in any way. The head, with the long bill is cleaned and fastened to the wing, and the feet left on.

Bread crumbs fried to a fine brown in butter, are served with game; also bread sauce and jelly. The bread sauce may be made as follows: Take a quantity of fine white light bread crumbs. Pour over them an equal quantity of boiling new milk. Let it soak a while, then stir in a little butter and salt. If desired, you may add cayenne pepper or a little mace. Some add a boiled onion chopped fine. It is very good without these additions, and suits the general taste better. It should have a boil up, and be allowed to stand, where it will not burn, on the back of the stove till wanted for the table. Small birds are very nice rubbed over with the white of an egg and then rolled in bread crumbs before roasting. Baste with butter and apply fresh bread crumbs to bare places till they have a uniform appearance. Some nicely toasted slices of bread, soaked a minute or two in the gravy from the pan, is served with game, and is very much relished by some persons.

NATURAL HISTORY OF THE NOSE.—The nose, says an observant writer, acts like a custom-house officer to the system. It is highly sensitive as to the odor of the most poisonous substances. It readily detects hemlock, henbane, monkshood, and the plants containing prussic acid; it recognizes the smell of drains, and warns us not to smell of polluted air. The nose is so sensitive that air containing a 500,000th part of bromine vapor will instantly be detected by it; it will recognize the 27,000,000th part of a grain of otto of roses, or the 15,000,000th part of a grain of musk. It tells us in the morning that our bedrooms are impure, and catches the first fragrance of the morning air, and conveys to us the invitation of the flowers to go forth into the fields and inhale their sweet breath.

SAVE A LITTLE.—Every man who is obliged to work for his living should make it a point to lay up a little money for the "rainy day," which we are all liable to encounter when least expected. The best way to do this is to open an account with a savings bank. Accumulated money is always safe, it is always ready for use when needed. Scrape together five dollars, make your deposit, receive your bank book, and then resolve to deposit a given sum, small though it be, once a week; according to circumstances. Nobody knows, without trying it, how easy a thing it is to save money when an account with the bank has been opened. With an account a man feels a desire to enlarge his deposit. It gives him lessons in frugality and economy, weans him from his habits of extravagance, and is the very best guard in the world against intemperance, dissipation and vice.

FRYING MEAT AND POTATOES.

None of the rapid processes of cooking is so generally abused as frying. The frying-pan has awful sins to answer for. What untold horrors of dyspepsia have arisen from its smoky depths, like ghosts from witches' cauldrons! The frizzle of frying meat is a warning knell on many an ear, saying, "Touch not, taste not, if you would not burn and writher!" There are two ways of frying employed by the French cook. One is to immerse the article to be cooked in boiling fat—emphasis on the word *boiling*—and the philosophical principle is so completely to crisp every pore, at the first moment or two of immersion, as effectually to seal the interior against the intrusion of greasy particles; it can then remain as long as may be necessary to thoroughly cook it, without imbibing any more of the boiling fluid than if it were enclosed in an egg-shell. The other method is to rub a perfectly smooth iron surface with just enough of some oily substance to prevent the meat from adhering, and cook it with a quick heat, as cakes are baked on a griddle. In both the cases, there must be the most rapid application of heat that can be made without burning, and by the adroitness shown in working out this problem, the skill of the cook is tested. Any one whose cook attains this important secret, will find such fried things quite as digestible, and often more palatable than others.

How Prof. Blot Fries Potatoes.

When Prof. Blot was in his glory at Saratoga, potatoes, fried under his supervision, were considered so delicious and unsurpassed for delicacy that they were sold in small great hotels, precisely the same as sweet parcels, and purchased by visitors from the meats, at a confectioner's. The frying was done, as suggested above, the potatoes being cut in thin slices, every piece of a uniform size and thickness. So perfectly were they cooked that they scarcely greased the delicate white paper in which they were put up! This hint of uniformity in size should also be observed in boiling the vegetable; select for any given boiling, potatoes of a uniform size.

Curing Meat.

To one gallon of water, add one and a half pounds of salt, half a pound of sugar, half an ounce of saltpeter, half an ounce of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together until all the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cold, pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpeter, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to answer well; though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar.

The Germantown *Telegraph*, good authority, says if this receipt is properly tried it will never be abandoned.

How to Jerk Beef.

Slice pieces from the round, or fleshy part, about two inches thick. If the operation is to be performed in a moist atmosphere it will be necessary to hang the pieces over a slow fire which is not permitted to blaze, so that the process may be aided by both heat and smoke. A scaffold may be constructed, the covering of which should consist of small poles or sticks, upon which the meat should be spread and frequently turned, and beneath which the fire should be placed. It is better in such a treatment to first dip the slices in very salt water.

In California and some other places, where the air is very dry, (during the dry season) meat may be jerked or dried by simply exposing it to the air and sun without salt. Fat meat of any kind cannot, however, be cured in this manner; as the chemical changes which make fat rancid are quite different from those that render red meat or muscle unfit for use. Salt, freely used, is the only agent that will preserve fat and keep it in good condition for food. In cooking jerked beef it should first be soaked about half an hour in warm water—according to hardness and dryness.

DR. J. V. C. SMITH tells the Farmers' Club of New York that much of the vinegar usually sold, is sulphuric acid, and that its use is the cause of the decay of the teeth.

Domestic Receipts.

How to Cook Old Fowls.—For the possible benefit of some of our young housekeepers, we will tell them how to cook an old chicken:—Prepare as for roasting, then boil three hours in a covered pot, with one quart of water, to which add two tablespoonfuls of vinegar; after which put in a pan, in a hot oven, for about one hour, to brown. The liquor in the pot to be prepared for gravy; should the water boil away to much, more should be added. The result is, the meat is as tender as young chicken, and some think richer and better.

To Make Leaven.—Stir corn meal in a pint of fresh buttermilk; add an old yeast cake dissolved in water; make it about the consistence of batter bread, and set in a warm place to rise. When well risen, add more meal, make it into cakes, and dry in the shade.

To Wash Black Calico Without Fading.—Put it to soak in weak suds made boiling hot; let it stand until cool enough to handle, then wash and rinse in the usual way. For stiffening, use strong coffee or old skim-milk.

How to Choose a Black Silk.—Pull out a thread of the filling and see if it is strong. If it stands the test, then rub one corner of the silk in the hands as though washing it. If on holding it up to the light, and looking through it, you see no traces of the rubbing, be sure the silk is good. The warp and filling should not differ much in size, or it will not wear well. If you choose a figured silk let the figure be small and well woven in, else it will soon present a frayed appearance, and you will have to pick off the little lags of silk that will dot the breadths. Reps silk wears about as long and well as any other kind. It does not wrinkle easily, and looks about as well after being dyed as before.

To Iron Velvet Ribbon.—Dampen the under-side slightly, and draw it backward and forward over a hot stove-pipe until the velvet is quite dry. A still better plan—though in winter it is not always as convenient—is to lay a wet piece of cotton-cloth on a hot flat-iron placed upside-down, and while the steam is rising from it, to draw the under-side of the velvet tightly backward and forward over the wet cloth.

Mechanical Hints.

BLACKING FOR HARNESS.—A good blacking is made of 4 ounces of hog's lard, 16 ounces neatfoot oil, 4 ounces yellow wax, 20 ounces ivory black, 16 ounces brown sugar, and 16 of water. Heat the whole to boiling, and stir it till it becomes cool enough to handle, then roll it into balls about two inches in diameter.

ANOTHER.—A cheap and good blacking can be made as follows:—Soften two pounds of glue in one pint of water, dissolve two pounds of soap (castile is the best), in one part of warm water; after the glue has become thoroughly soaked, cook it in a glue kettle, and then turn it into a large pot, place the pot over a hot fire and pour in the soap water, slowly stirring until it is well mixed; then add a half-pound of yellow wax cut in slices. Let the mass boil until the wax becomes melted, then add half a pint of neatfoot oil and a sufficient quantity of lamp black to give it color; let it boil a few minutes, and it will be fit for use.

FRENCH POLISH.—When a harness becomes soiled its beauty can be restored by the use of French polish, which is made as follows:—Take 4½ pounds stearine, 6½ pounds of turpentine, and 3 ounces of coloring or ivory black. Beat the stearine out to thin sheets with a mallet, then mix it with the turpentine, and subject it to a water bath. While heating it must be stirred continually; the coloring matter is to be thrown in after the mass has become thoroughly heated. It is thrown into another pot and stirred until it is cool and thick; if not stirred, the mass will crystallize and the parts become separated. When used, it must be warmed, and a small quantity rubbed on the leather with a cloth; use but little at a time and put on very thin. After it has partially dried, rub with a silk cloth, and a good polish will be produced.

WASH FOR CLEANSING SILVER AND BRITANNIA WARE.—Take one pound of common hard soap, three table spoonful of sp. of turpentine and half a tumbler of water. Allow the soap to dissolve; then boil ten minutes, and before it cools add six table spoonful of sp. of hartshorn. Make a suds of this preparation and wash the silver with it.

Life Thoughts.

It is undoubtedly a duty to require riches, not for the condition which they make, but for the power they confer. The wisdom, however, properly to employ them demands even more earnest study and honest endeavor.—*Simms*.

A WISE MAN has found a remedy for unhappy marriages. It is to abolish the institution of marriages entirely.

A GOOD conscience is some times sold for money, but never brought with it.

MORE flies are caught with a drop of honey than a hogshhead of vinegar.

A MAN had better be poisoned in his blood than in his principles.

DEATH has nothing terrible in it but what life has made so.

The glory of a people and of an age is always the work of a small number of great men, and disappears with them.

SOME often repent, yet never reform; they resemble a man traveling a dangerous path, who frequently starts and stops, but never turns back.

FIGHT hard against a hasty temper. Anger will come, but resist it stontly. A spark may set a house on fire. A fit of passion may give you cause to mourn all the days of your life.

Do daily and hourly your duty; do it patiently and thoroughly. Do it as it presents itself; do it at the moment, and let it be its own reward. Never mind whether it is known or acknowledged or not; but do not fail to do it.

If you are a wise man, you may treat the world as the moon treats it—show only one side of yourself; seldom show yourself to much at a time, and let what you show be calm, cool and polished; but look at every side of the world.

EVERY lady who educates her servants into greater truthfulness, fidelity and orderly ways of life, is doing missionary work of the best kind.

"BY FITS AND STARTS."—Spasmodic efforts amount to little or nothing. It is steady application that accomplishes. One may be easily "fired up" to do something, and as suddenly cooled off. The team—of men or horses—that pull together, and pull steadily, will do the work. But those who are always beginning, and never finishing, have more of the spasmodic than of the persevering. Moral: Teach your children to do one thing at a time, and to finish what they begin.

WHAT A MAN KNOWS.

What a man can write out clearly, correctly and briefly, without book or reference of any kind, that he undoubtedly knows, what ever else he may be ignorant of. For knowledge that falls short of that—knowledge that is vague, hazy, indistinct, uncertain—I for one profess no respect at all. And I believe there never was a time or country where the influences of careful training were in that respect more needed. Men live in haste, write in haste,—I was going to say think in haste, only that the word thinking is hardly applicable to that large number who, for the most part, purchase their daily allowances of thought ready made. You find ten times more people now than ever before who can string words together with facility, and with a general idea of their meaning and are ready with a theory of some kind about matters. All that is very well so far as it goes, but it is one thing to do this and quite another to know how to use words as they should be used, or really to have thought out the subject which you wish to discuss.—*Lord Stanley*.

NEWSPAPER.—A man eats up a pound of sugar, and the pleasure he has enjoyed is ended; but the information he gets from a newspaper is treasured up in his mind, to be used whenever occasion or inclination calls for it. A newspaper is not the wisdom of a man or two men; it is the wisdom of the age—of past ages, too. A family without a newspaper is always half an age behind the times in general information besides, they never think much, nor find much to think about. And there are little ones growing up in ignorance, without a taste for reading. Besides all these evils, there's the wife who, when her work is done has to sit down with her hands in her lap, and has nothing to amuse her mind from the toils and cares of the domestic circle. Who would be without a newspaper?—*Franklin*.

The Ohio State Library has been presented with a deed 222 years old. It was made for the conveyance of land in Wales.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE..

San Francisco:
Saturday Morning, Feb. 18, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Feb. 15, 1871.—Legal Tenders buying @90; selling @90½. Gold in New York to-day 111½.

Table of Contents.

Babcock's Fire Extinguisher, Ill; Arizona; Copper; State University.....	97
MECHANICAL PROGRESS.—Weight and Short Stroke for High Speed; Steel Tires; Chloral Hydrate in Photography; Projectiles; Iron Smelting; Utilizing Waste Heat; Peat; Tongh Iron.....	98
SCIENTIFIC PROGRESS.—Descent of Man; Tubercle Germs; Iridosmine; Glycerine Extract of Pepsin; Spontaneous Generation; Eclipse.....	98
Notes on Merced County; A Huge Manufacturing; Remarkable Body of Water.....	99
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.....	100, 101
INDUSTRIAL MISCELLANY.—Young of Oysters; "Iron Clad" Flouring Mill, Ill; Cal. Sugar Making.....	102
HOUSEHOLD READING.—Cooking Game; Natural History of the Nose; Frying Meat and Potatoes; Domestic Receipts; Mechanical Hints, etc.....	103
Notes to Correspondents; Curious Gold-Quartz Crystal; Utilizing Nature's Stores of Energy; Hallidie's Improved Wire Rope-Way, Ill; Recent Patents.....	104, 105
Vaporization and Elastic Force of Steam, Ill; Ice-Boats and Fast Trains; Lowest Type of Humanity.....	108
Bull Run District, Nev.; Banner District, Cal.; Engineering Projects; Rainy Season for Twenty-One Years; New Publications.....	109

Notices to Correspondents.

QUARTZ.—About the only way to "determine the weight of gold in quartz, without breaking up the quartz," would be to take the specific weight of the whole mass and then calculate the amounts of gold and of quartz, the specific gravities of which are known. If there were absolutely nothing but gold and quartz in the piece experimented with, no air-bubbles, etc., this method would give good results. But as such a case never exists, probably, we should not care to recommend the method. A careful guess from an experienced hand would be just about as trustworthy. As to sawing through the crystals, one way is to fasten the stone on a stand, and cut it with a fine iron or copper wire stretched in a bow and moistened with emery and water.

TWO OF OUR READERS.—The thermometer will indicate the same (or very near the same) temperature whether inserted in the steam or in the water. It must be remembered that the water is under pressure, and the effect in this case was given in lecture III.

Curious Change in Gold Quartz.

At the meeting, last year, of the British Association, Mr. T. A. Readwin read a note on a gold-quartz crystal which he had picked up near Bala Lake, Wales, in 1863. At that time it was quite transparent, but tinged slightly with gold-yellow, and under the microscope the color disappeared entirely. The crystal was labelled and put away in his cabinet, where it remained unnoticed until 1869.

The crystal had then become more opaque and has now all the appearance of a solid crystal of gold, which it has been taken to be quite frequently. The color is pale, but all the gold found in the locality whence it was taken is light colored, as it contains a large percentage of silver, sometimes as high as 20 percent. Mr. Readwin wished to bring to the notice of the association this curious mineralogical fact, which gives room for much interesting speculation.

A NEW BAG FACTORY.—Theodore Metzler is about to start a bag factory at Santa Rosa.

Utilizing Nature's Stores of Energy.

In the report of Prof. Le Conte's lecture, on another page, will be found a classification of the stores in which nature has laid up energy. Now the fact that great loss of power inheres in all our engines for converting heat into motion, and the great amount on our coast of the power included in the professor's third class—the natural motion of air and water—makes the subject of better utilizing this energy especially important to us.

We are greatly interested, both in the cities and in the country, in finding some power cheaper than steam. The alarm has already been sounded that our forests are being thinned out with dangerous rapidity. Moreover, especially in many mining districts, the want of fuel is a fatal drawback to the development of rich natural resources. If we could only use the superabundant energy furnished by the moving waters and winds, it would be a very great advantage. Too little attention has been paid here to these stores of power. At the East and elsewhere, the subject is attracting more attention, although certainly no more important to the development of the country.

Utilizing distant waterfalls, to compress air which can be conveyed in tubes and distributed for general manufacturing purposes, has been suggested but not acted upon. The experiment is now, however, about being tried at Rochester, New York. A company has obtained a charter, and the consent of the city authorities, to use the great Genessee Falls in this way. Pipes will be laid in the streets so that every manufacturer can be supplied with air compressed to the density of say 5 or 6 atmospheres. He has only to turn a stop-cock, and the released air will rush upon the piston of his engine and drive it after the fashion of high-pressure steam. There does not seem to be anything impossible in the idea. The imprisoned water in our hydrants shows how easily the gushing stream might turn a wheel proportioned to its volume and to the height of the reservoir whence it flows. Such powers for petty manufacturers, were provided in Paris, and air-power has advantages which readily occur to one: No dirt, no accidental inundation, no waste pipes, no freezing, no dry seasons, while ventilation is secured to the fullest extent. For the smallest forms of industry, such as sewing machines, it would be admirable.

The Rochester Company is also looking seriously to supplying Buffalo with this power from Niagara Falls, distant 20 miles, (where enough power is wasted to drive all the machinery in the world); and the tidal force at Hell-Gate is being considered with a view to compressed-air power for New York and Brooklyn.

It may well be asked whether something cannot be done for San Francisco. Some two years ago, a proposition was made to harness the tide-wave outside the Heads and make it condense the atmosphere for useful purposes. We believe that the projector had a plan for reservoiring the power thus obtained. The wind-power here is sufficient during eight months of the year to drive any quantity of machinery if it could be harnessed to the works. If there be a useable power in the tidal-wave to compress air, why may not our glorious surplus of winds be utilized in the same way?

If we should cherish the memory of the man who makes two blades of grass grow where only one grew before, how much more should we esteem him who, from what is a nuisance, brings forth benefaction? One of the most money-making companies in France is that which confines itself entirely to the utilization of waste products. Refuse of all kinds is examined, and chemistry usually detects in what we throw away, some valuable product. The sewage of cities in Europe is now being generally utilized, and from the disgusting refuse of coal and petroleum, we get our beautiful aniline colors. Now, why can't we make our savage summer winds work for us as well as against us? The same power that bucks against us, bucks against a windmill to give it rotation, and can certainly drive an air pump, to give compression to the atmosphere, and thus by proxy to turn our machinery. The subject is worthy of consideration.

It would be difficult to over-estimate the

value of such a motive power to our city, if it were furnished at a price that would pay reasonable interest on the investment. The power would be unlimited, and one great obstruction to industry would be withdrawn. Let us hope that the inventive genius of California may be stimulated by the great reward in store for him who succeeds in this enterprise.

Three points are to be considered in this connection: how to catch the power, how to transmit it to the desired point, and how to store it up in a convenient position until directly needed.

In regard to the first point, nothing need be said at present. Our windmills and water-wheels are already very good, for the want of them has been felt in practical life, and attention has been and is being given to the improvement of their construction.

The second point, the transmission of force, is now being studied quite extensively. The use of compressed air has been experimented on to the greatest extent at the Mout Cenis tunnel, and the engineers of this mighty work have expressed themselves strongly in favor of the view that the plan is economical, and that by this method power may be transmitted long distances. Experiments have been made elsewhere, and the question of loss of power by friction, leakage, etc., has been investigated quite extensively.

Hirn's telodynamic cable gives another method. It rests on the principle of the substitution of velocity of motion for mass of matter moved, and consists in employing a cable, supported on pulleys, and driven at a high rate of speed. In France the cable has been used very extensively. In Russia, there is one in use transmitting power from turbine wheels over a distance of some 4,800 feet. In Germany and in Denmark the cable is used; and at the mines of Falun, Sweden, a more than 100 horse power is transmitted over three miles. It is stated that, in this way, 100 horse power may be carried six miles without losing over 25 per cent.; and the expense is given as about \$10,000 for such a cable in Europe.

The idea of conveying power by electricity has been suggested. Dr. Partz, of Oakland, has taken some steps in the matter, and, if we are not mistaken, has applied for a patent on the subject. The general plan would be to convert mechanical force, where such is abundant, into electricity by means of what are known as magneto-electric generators, to convey the currents over proper wires to the required point, and then to re-convert the electricity into motion by the "electro-motors." There is much to be said in favor of such a method, as it would admit of the transmission of power over much greater distances than would be possible by the other plans mentioned.

In regard, finally, to accumulating force in reservoirs, we can as yet state nothing of a satisfactory character. Compression of water, raising water or other material to a high elevation, using springs, accumulation in fly-wheels (as the Mahovos, which have been previously described in the Press), and other ways have been tried; but we know of no method at all applicable for general use and to any great extent, which can be called a success. But if we could only store up the power of our summer winds for winter use, for instance, what a revolution it would make in our manufacturers.

We have merely thrown out a few hints in the matter. The subject is most important and worthy of consideration. Although much may appear visionary just at present, we believe that at no distant period the problem will be forced on man's attention, and will be solved by man's ingenuity.

THE GOLDEN AGE.—This is the name of a new weekly journal devoted to the free discussion of all living questions in church, state, society, literature, art, and moral reform, which is issued in New York. Mr. Theodore Tilton, having retired from the *Independent* and *Brooklyn Union*, will have editorial charge of the paper, and his excellent reputation is a guarantee that the new journal will be of high standard. Subscriptions, \$3 per year, may be sent to him, P. O. Box 2,848, New York City.

NARROW GAUGE.—A telegram from New York, dated Feb. 12, says that the Erie Railroad will expend considerable money, some six millions, in laying a third rail between New York and Buffalo, and "purchasing the equipments for the connections with narrow gauge railways thence to Chicago.

PATENTS & INVENTIONS.

Hallidie's Endless-Wire Rope-Way.

We illustrate to-day an invention, recently patented by Mr. A. S. Hallidie, of this city, for the rapid and economical transportation of such material as ores, lumber or goods, over a rough and otherwise accessible country, as well as for the transmission of power from one point to another. The invention is one of very considerable merit, and as it concerns a matter of the greatest importance to miners and many others on our coast, we describe it fully.

The invention consists in the use of endless iron or steel wire ropes, supported on peculiar sheaves, placed on posts, actuated by the gravity of the descending loads, or by an engine attached to a grip pulley, and carrying hurdens in the manner hereafter described. Similar inventions have been made before, and the merit of this, therefore, depends on the peculiar construction and adaptation to the wants of the localities.

Fig. 1 shows a section of a rough mining region, with the undulations and depressions incidental to such a country, over which it is desired to transport ore from the mine, A, to the mill, B, distant, say, one mile or more. At proper points, from 200 to 600 (usually 250) feet apart, are erected posts, c, with guide-sheaves, on which the rope travels. For the sake of illustration, sacks, d, are shown, in the cut, suspended by proper devices to the rope. Near A and B, at each end of the rope-way, are placed horizontal grip-pulleys, devised by Mr. Hallidie, 8 to 12 feet in diameter, around and in the groove of which runs an endless wire-rope of sufficient length to extend from one pulley to the other and back, so that the full sacks, or cars, can be run down on one side and back on the other.

Fig. 2 shows the construction of the supporting posts. These are set firmly in the ground, and have on top a cross-beam, on each extremity of which are placed grooved sheaves, a, b, freely revolving on spindles attached to the cross-arm, and so arranged, one over the other, that the rope will run between them. The lower sheave, b, supports the rope, and the upper one, a, keeps it from jumping out of place. In order to give a clear idea, a car, C, is shown on one side, and a sack, D, on the other.

Attached to the wire rope at equal distances apart, usually about every 50 feet, are peculiarly constructed carriers. Figs. 3 and 4 show these and the manner of attaching them to the wire; Fig. 3 giving a side view and Fig. 4 an end view. Here a and b are the sheaves, c the rope, and C, the carrier. This carrier is placed in a frame d, which is hung on standards, e, in such a manner that the carriers will always maintain a horizontal position, whether going up hill or down. The standards, e, are attached to a bar, f, shown on a larger scale in Fig. 5. The end of the bar is swaged out into a band which encircles the wire rope and is riveted to the bar, so as to hold the rope tightly. The bar, f, is about one half the size of the rope and as the center of gravity of the load comes vertically below the wire, this bar always stands out horizontal, and thus allows the load to be carried past the sheaves and pulleys without interference. One end of the carrier is an apron, g, which enables the load to be easily dumped.

Instead of such a carrier, sacks may be used if preferred. The simpler arrangement for attaching the sacks, essentially the same as in the case of the carriers, is shown at g, Fig. 2.

Fig. 6 shows the patent grip pulley employed at each end of the line; Fig. 7 is a section of the rim of the pulley, showing the mode of construction. The rope is denoted by k; i, i are clips working on a fulcrum, j, j. The rope pressing on the clips at the bottom, as it enters them, causes them to close over it, gripping it securely and preventing its slipping. The part of the rim, k, is cast separately, and bolted to the main wheel, l, by the bolt, m, m. The rim of the wheel is cast with recesses to take the clips, fitting them and allowing them to work freely; while the clips cannot possibly be displaced, except by removing the part, k, which is cast separate for this purpose.

From this it will be readily understood that the rope is grasped as soon as the

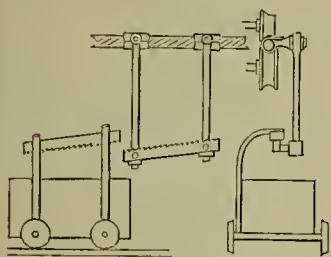
pressure begins to act on the clips, and is released as soon as the pressure is removed, the whole acting automatically and invariably. For conveying power over long distances, this feature is of the greatest value.

A carrier is shown in Fig. 8, which may be found very useful in certain cases, as it economizes in manual labor. A car, *n*, is mounted on wheels so that it can be run into the mine. It has a carrying frame, *p*, above it, the longitudinal beam of which is inclined so as to correspond with that of the standards, *r*. Both are toothed, the former on its lower, the latter on its upper side. Now if the car be run into position, when the standards, *r*, which are attached to the rope, come around, they will catch and carry off the car without any manual labor. The teeth on the beams prevent any slipping.

The general system and manner of working of the rope-way will now be understood by a glance at Fig. 1. By it, material can be transported from a higher to a lower, or from a lower to a higher point. In the last case, power must be applied, which can be done directly from a stationary engine at one end by means of the grip-pulley; in the first case, often no extra power will be needed, the gravity of the descending loads being sufficient to keep the rope in motion.

In erecting this system, after the route has been decided on, posts are placed on

Fig. VIII.



the prominent points, being of a sufficient height that the rope may be clear from all obstructions on the ground,—as snow, rocks, cattle, etc. At suitable distances between these (which serve to fix the principal points of the line), say, 300 feet apart, other posts are erected to support and lead the traveling wire. The height and number of these are regulated by the configuration of the line and the necessities for sustaining the rope.

The posts being in position and the grip-pulleys being in working order, the coil of wire rope is placed at the upper terminus of the line, and one end is put in the grip-pulley and carried along from one post to another, being placed between the sheaves on the posts. A brake attached to the grip-pulley regulates the paying out of the rope. One coil being exhausted, the end of the next one is joined to it by a long splice, and the operation is continued until the rope has been carried down one side. Another wire rope is then, in a similar manner, brought up the other side, and the two ends are spliced, the wire rope being placed in the groove of the upper pulley. By means of a powerful purchase at the lower end, the rope is stretched tight, spliced and put in the lower pulley.

At the lower end, provision is made, by a suitable frame and apparatus, for taking up the slack which occurs for some days after the rope is put on, and then disappears. The carriers are then attached and the line is ready for work.

Cost and Running Expenses.

The following is the estimate of the cost per mile for a line with sufficient descent to run itself by gravitation:

2 Miles of 2-in. Circ. Steel Wire Rope.....	\$2,534
2 Grip-Pulleys and Frame.....	400
17 Posts, with Sheaves complete and erected at \$30.....	510
21 Carriers (plain hook) at \$6.....	1,266
Erecting and Splicing Wire Rope.....	300
Total Cost per mile.....	\$5,010

The life of a steel wire rope may be placed at four years; of end-apparatus, four years; of posts, seven years; of the running posts, two years.

The running expenses, per year, may be estimated as follows:

1 Brakesman at \$100 per month.....	\$1,200
1 Supply man at \$65 per month.....	780
1 Delivery man at \$65 per month.....	780
1 Line man at \$75 per month.....	900
	4,660

Oil and Grease.....	180
Tar Mixture for Rope.....	240
Wear and Tear of Rope.....	635
Wear and Tear of other parts.....	9.0
Interest on Cost, 10 per cent.....	501
Incidentals.....	884
	3,340

Total per annum.....	\$7,100
Average per day (300 working days).....	\$23.33
Average per ton per mile (100 tons per day of 10 hours).....	23.33 cts.

The running expenses depend on the wear and tear of rope and apparatus, and in the fact whether extra power is required,

Fig. I.

ing or road building is required. It can work under all circumstances of weather, with great depths of snow on the ground, during heavy storms and freshets. It can run constantly without rest; as well during a dark night as a clear day. It can cross deep gorges and chasms. It can pass around precipitous bluffs and perpendicular cliffs. The rope can never leave the posts or sheaves. It can furnish and transmit power when there is sufficient descent by its own gravitation, or by an engine attached to either end. It can be constructed and worked cheaper than any other system or road can be constructed and worked. By using the duplex carrier it can convey

or whether the line will work by gravitation. Assuming the line to be 2 miles long, that is, the distance between the mine and the mill,—10560 feet; the difference in al-

Fig. III.

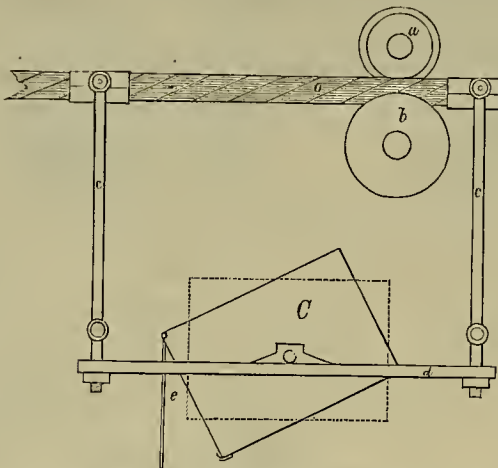
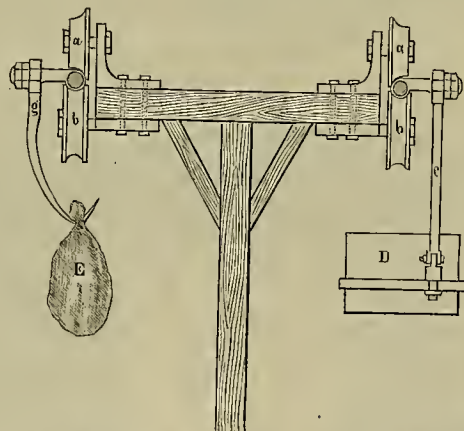


Fig. II.



titude, 2000 feet; speed of rope, 4 miles = 21120 feet; distance between carriers, 50 feet; load of each carrier, 50 lbs. (this may be 150 lbs.)—then the result is, 21120 ÷ 50 × 50 = 21120 lbs. ore delivered per hour = 10½ tons.

Application—Advantages.

The foregoing system is applicable for the following purposes: For conveying ores from the mine to the mill. For conveying light loads of any material from place to place. For transporting lumber across difficult points, and to shipping in an offing. For conveying passengers across gorges, chasms, and over hazardous roads. For supplying water to reservoirs across chasms, etc.

The advantages claimed are: No grad-

any material, such as lumber, goods, ores and even passengers, from place to place.

A reference to the article on the preceding page shows that such a contrivance

Fig. IV.

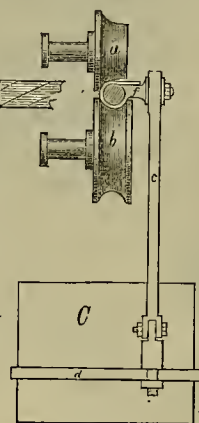


Fig. VI.



Fig. VII.

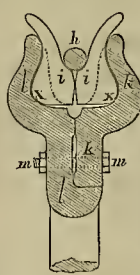
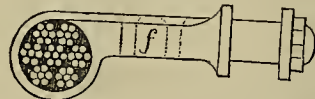


Fig. V.



the patentee, Mr. A. S. Hallidie, San Francisco, Cal.

WOODEN SHOES IN MAINE.—Nice wooden shoes are manufactured by the Swedish colony in Maine. A pair costs forty cents, and two hours time is consumed in the manufacture.

Notices of Recent Patents.

TIRE FOR TRACTION ENGINE.—O. Hyde, Oakland. The advent of the Thompson Road Steamer has awakened a new interest in the matter of traction engines, and rendered any subject connected with them of special importance. The rubber tire being the principal point, there is nothing more natural than that efforts should be made to improve this. Mr. Hyde has introduced a very ingenious device of the kind. He employs cylindrical or polygonal blocks of rubber placed side by side around the wheel. These blocks can have a central hole in order to have greater contractive and expansive power. The triangular spaces between the outer parts of the blocks are filled by wooden or metallic wedges, which are secured to the vertical rims of the wheel by links, which extend downwards at an angle and are bolted to the rims, the bolts passing through slots so that they can play back and forth as the wedges are compressed and return to their original position. These wedges unite the whole into a compact tire and prevent the elastic cylinders from being displaced. By this combination and arrangement, the metallic tires of traction wheels can be encircled with a cheap, substantial and efficient elastic tire which can easily be fitted and easily repaired in case of necessity.

DIRECT ACTING STEAM ENGINE.—W. D. Hooker, San Francisco. This is an ingenious and, apparently, very efficient improvement in that class of steam engines which are particularly adapted for steam pumps and the like, where it is necessary to be able to start the piston from any point in the stroke,—an important object which it is difficult to obtain with certainty. Mr. Hooker's invention consists in a combination of valves to effect this, and a combination of the main and auxiliary valves with the main piston of the engine, so that the action of the valves is made certain. For a pin projects into the cylinder, in such a way that the piston strikes this and thereby moves the auxiliary valve, so that no ordinary trouble can prevent its admitting steam to the main valve. It consists also in an arrangement for arresting and cushioning the piston at the end of the stroke, this being in connection with the action of the auxiliary valve just alluded to. The details of the construction cannot, of course, be plainly and fully described without the aid of explanatory drawings, and we can therefore merely touch on one or two points in a general way; but the invention deserves the careful examination of mechanics.

CO-OPERATION WITH EMPLOYERS.—At the extensive Consett Iron Works, in England, where employment is given to some 5,000 workmen, there is much done both by the company and by the men for the mutual benefit. The company keep up schools with reading rooms, etc., and means for recreation, possess 1,500 workmen's cottages, provide a surgery and an infirmary for men injured in the works. A staff of five surgeons is employed and paid by the workmen, who have also a co-operative store.

IS IT A SWINDLE?—Mrs. S. T., 222 Chestnut street, Manchester, N. H., having spent considerable money on stock of the Garner Gold Mine, on the Main Tuolumne river, Tuolumne county, Cal., desires to know whether the affair is a swindle. Can anyone tell her or us?

CANCER article next week.

OMITTED.—We are obliged to omit this week communications from Bull Run, Banner District and Cerro Gordo, report of the N. Y. Society of Practical Engineering, notices of publications, and other matter which was already in type.

Miscellaneous.

**THE GIANT
POWDER COMPANY.**
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

**J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.**
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

**L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,**



No. 341 KEARNY STREET,
Between Bush and Pino streets, San Francisco.

The first and only Manufacture on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amher Mouth-pieces Fitted.

**The Merchants' Exchange Bank
OF SAN FRANCISCO.**

Capital, One Million Dollars.

A. N. COLEMAN, President.
R. N. VAN BRUNT, Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-gy

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to this

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 31 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v213m

**GIANT CEMENT.
GIANT CEMENT.**

A most extraordinary and universally needed article
for mending Furniture, Crockery, Glassware, Marble,
Meerscham Pipes, Ornaments, etc.; also splicing
Leather Belting and putting Boots and Shoes. This
Cement possesses extraordinary merit, and is in every
way a first-class article. Every can is its own testimo-
nial. Also, MINERS' RUBBER CEMENT, for mending Rubber
Boots, Shoes, Belting, Coats, and Hose without
stitching! Easily applied, never failing, and perfectly
waterproof. Both Cements are put up in TIN CANS ONLY,
with full directions. Take no other. GIANT CEMENT
and MINERS' RUBBER CEMENT are kept by Druggists and
Dealers throughout the country. Country Dealers can
be supplied by ordering from any house here or in Sacra-
mento with whom they deal, or by sending direct to
us. Send for Agents' Circulars and Price List, to Giant
Cement Manufacturing Co., 419 Washington street, San
Francisco

**MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.**

R. H. McDONALD & CO.,

WHOLESALE

DRUGGISTS,

Have removed to the southwest corner of Market and
First streets and now offer to the trade, and at low prices
and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sun-
dries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3mims S. W. Cor. Market and First streets.

NOTICE.

THE undersigned having completed arrangements
through one of the first "Promoters" in Europe, for
placing CALIFORNIA MINING SECURITIES ON THE
LONDON MARKET, is now able to offer superior facili-
ties for disposing of reliable mines of gold, silver or
other minerals, as above stated. All properties given in
my charge will be placed direct, without loss of time,
upon the London Market, through a perfectly reliable
party, long resident and entirely familiar with the busi-
ness. Every advantage offered to parties owning shares
in American mines worked by English capital, to dis-
pose of the same. Advances made and ample security
given when required.

GEO. W. SMILEY,
24v21-3m 424 Montgomery st., San Francisco.

London Agency—BATES, HENDY & Co., 4 Old
Jewry, E. C. & Geo. Street, 30 Cornhill, E. C. London
will receive subscriptions and advertisements for the
PRESS.

Eastern Advertisements.

EVERETT HOUSE,
Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,

Only Three Minutes walk from the
Court House, Post Office, and various places of amuse-
ment.

The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail

Road Passenger Depots,

are within one block. The house is NEATLY AND ELE-
GANTLY FURNISHED THROUGHOUT, and travelers from Cal-
ifornia, Oregon and the Territories, will find this

Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best
possible treatment.

TERMS—\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors.
2v22-3clmims



Over 300 Actual Fires put out with it. More than
\$4,000,000 worth of property saved from the flames.
The Government has adopted it. All the leading Rail-
roads use it. Insurance Companies reduce rates where it
is introduced. Invaluable for private Residences,
School Houses, Hotels, Warehouses, and all buildings
where life and property are in danger from fire. Send
for "Its Record." F. W. FARWELL, Sec'y.
3v22 3ms 123 Washington st., Chicago.



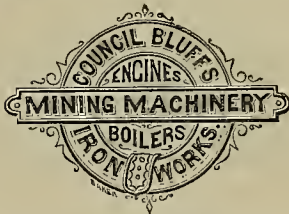
**LEONARD'S
Patent Vapor Jet Burner and
Hand Lamps.**

Also, Portable Gas Burners and
FIXTURES.

County and State Rights for sale.

Send for Circulars.

Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.
3v22-3ms



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any
shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine
for dry crushing in use, doing easily, the work of ten
stamp with one quarter the power.

**Stamp Mills, with all late
Improvements.**

Send for prices and information. Address

C. F. HENDRIE, Prest, R. J. CORY, Secy & Treas.
1v22-3m4cs Council Bluffs Iowa.
[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Successors to

Wm. J. Young & Co. Wm. J. Young & Son,
Wm. J. Young.



MATHEMATICAL

AND

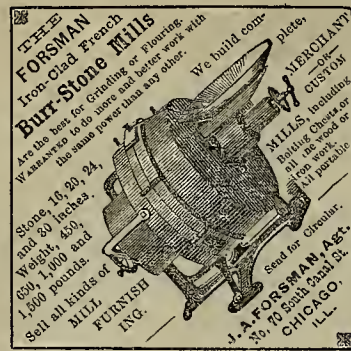
ENGINEERING

INSTRUMENT MANUFACTURERS

At their old location

No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can
in future keep a full supply of instruments on hand.
Tapes, chains, stationery, draughting instruments and
all supplies for field or office. Original manufacturers
of Burt's Solar Compass. 4v-22



Send for Circular.

3v22-3ms

Established 1843.

**LOUIS ESPENSCHIED,
WAGON MANUFACTORY,**

No. 1815 Broadway, St. Louis, Missouri.

3v22-6ms

Withman Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN

China, Glass and Queensware, Lanterns, Looking Glasses
etc., etc. 113 N. Main Street, St. Louis Mo. The cel-
ebrated Novelty Lanterns always on hand. 3v22-3ms

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH
on Gold, Rose-Pearl, or Pyroxoline, that
will not loosen while masticating, call
on DR. BEERS, 109 Montgomery street, opposite the
Occidental.

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

**JOHN GORMAN,
NOTARY PUBLIC.**

COMMISSIONER FOR

Nevada, New York, Etc.

No. 509 MONTGOMERY STREET. 5v20-3m

**GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,**
in Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO. 2v16

**JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.**

Particular attention paid to all kinds of Fire Work,
such as Boilers, Furnaces, Ovens, Grates, Ranges, &c.,
Orders left with C. W. WHITE, 47 Clay Street, JOS.
THORNHILL, 1612 Mason St., near Green, will be
promptly attended to. 2v21-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

**Farmers and Mechanics
BANK OF SAVINGS,**
No. 225 Sansome Street.

interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

**THE EYE! THE EAR!
DR. D. E. DUDLEY,**
Surgeon, Oculist and Aurist,
Has removed to his new rooms, 24 Post street between
Montgomery and Kearney. 3v22-3ms

**WM. BASTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.**
565 Clay street, (southwest cor. Sansome),
SAN FRANCISCO. 15v12-3m

**THOMPSON BROTHERS,
EUREKA FOUNDRY,**
and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

**SAN FRANCISCO
CORDAGE COMPANY.**

Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

**SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,**

Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

**J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,**
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
SAN FRANCISCO. 6v14tf

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Pass'ger Sunday except d	Express Train Daily	JANUARY 22, 1871.	Express Train Daily	Pass'ger Sundays excepted
4.42 P.M.	8.00 A.M.	San Francisco	5.45 P.M.	12.40 P.M.
4.42 P.M.	8.40 A.M.	Oakland	5.12 P.M.	11.58 P.M.
	7.30 A.M.	San Jose	5.40 P.M.	
7.58 P.M.	12.10 P.M.	Stockton	1.46 P.M.	8.35 P.M.
9.35 P.M.	2.10 P.M.	Sacramento	11.15 A.M.	7.09 A.M.
	4.10 P.M.	Marysville	8.10 A.M.	
	9.00 P.M.	Sesma	4.20 A.M.	
	2.20 P.M.	Sacramento	11.45 A.M.	
	5.25 P.M.	Colfax	8.45 A.M.	
	1.15 A.M.	Red Bluff	1.00 A.M.	
	3.10 A.M.	Winemont	4.05 A.M.	
	12.00 M.	Battle Mountain	1.25 P.M.	
	3.10 P.M.	Carlin	10.15 P.M.	
	4.40 P.M.	Elko	8.45 A.M.	
	1.25 A.M.	Kelton	10.10 A.M.	
	6.10 A.M.	Ordenville	5.00 P.M.	

**OAKLAND BRANCH—LEAVE SAN FRANCISCO, B 6 50
8 00, 9 10, D 10 20 and D 11 10, a. m. 12 00, 1 50, D 3 00, 4 00, 5 15,
6 45 and B 11 30 p. m.**
LEAVE BROOKLYN, B 5 15, B 6 30, 7 40, 8 50 and 10 00 a. m.,
1 30, 2 40, 3 55 and 6 25 p. m.
LEAVE OAKLAND, B 5 25, B 6 40, 7 50, 9 00, 10 10, 11 00 and
11 50 a. m., 1 40, 2 50, 3 55, 5 05 and 6 35 p. m.
**ALAMEDA BRANCH—LEAVE SAN FRANCISCO, B 7 20, E
9 00, B 10 30 and E 11 30 a. m., 1 30, 4 00 and 5 30 p. m.**
LEAVE HAYWARD, B 4 15, B 7 00, E 8 30, B 9 40 and E 11 00
a. m. and 3 25 p. m.
LEAVE ALAMEDA, B 5 15, B 7 36, E 9 06, B 9 36 and E 11 36 a.
m., 1 55 and 4 05 p. m.
Sundays excepted. D to Oakland only. E Sundays only.
C to Fruit Vale only.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



The following time will take effect
Saturday, October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
New World Leaves San Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A.M.	12:45 A.M.	12:30 A.M.	2:15 P.M.
4:00 P.M.	8:15 P.M.	8:20 P.M.	9:30 P.M.

ON SUNDAYS.

8:30 A.M.	12:30 P.M.	1:00 P.M.	5:00 P.M.
-----------	------------	-----------	-----------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train Leaves Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at San Francisco.
--------------------------------	-------------------------------	--------------------------------	---

6:00 A.M.	7:30 A.M.	7:15 A.M.	10:30 A.M.
1:00 P.M.	2:30 P.M.	3:15 P.M.	7:30 P.M.

ON SUNDAYS.

10:15 A.M.	3:00 P.M.	2:30 P.M.	7:00 P.M.
------------	-----------	-----------	-----------

TICKETS for sale at 313 Montgomery street, or on board
steamer New World. R. S. MATTHEW, Superintendent.

N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.

L. C. FOWLER, General Freight and Passenger Agent,
Vallejo October 1, 1870. 13v20-ly

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

—18—

61 Miles the shortest line

From Chicago to New York. Three daily lines of

Pullman's Palace day and Sleeping Cars,

from Chicago

to Pittsburgh,

Harrisburg,

Philadelphia

and New York,

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence,

Springfield, New Haven, Worcester, Boston. And is

the most direct route to Washington city.

Express trains on this line are equipped with WEST-

INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them

an opportunity of seeing the finest views among the

Alleghany Mountains, besides visiting Pittsburgh, Phila-

delphia, and New York without extra cost.

All New England Passengers holding through

tickets will be transferred, with their baggage, to Rail

and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in

San Francisco, at 422 California street, 208 Montgomery

st., 306 Montgomery st., and at Ticket Office of Central

Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne

Denver and Omaha. Be sure your tickets read via

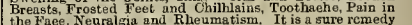
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chi-

cago route. T. L. KIMBALL, Gen'l. West. Pass. Agt.

Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,

4v22-1y San Francisco, Cal.



The Great Family Medicine.

TAKEN INTERNALLY, it cures sudden Colds, Coughs,

etc., and Weak Stomach, General Debility, Nursing Sore

Mouth, Canker, Liver Complaint, Dyspepsia or Indigestion,

Croup or Pain in the Stomach, Bowel Complaint, Painters' Colic, Acute Cholera, Diarrhea and Dysentery.

APPLIED EXTERNALLY, cures Felons, Boils, and Old Sores, Severe Burns, Scalds, Cuts, Bruises and Sprains, Swelling of the Joints, Ring-Worm and Tetter, Broken Bones, Frosted Feet and Chills, Toothache, Pain in the Face, Neuralgia and Rheumatism. It is a sure remedy for Ague, Chills and Fever.

PAIN KILLER,
Taken Internally, should be adulterated with milk or water, or made into a syrup with molasses. For a Cough, a few drops on sugar, eaten, will be more effective than anything else.
See printed directions, which accompany each bottle.
Sold by all Druggists. 14-1m



STURTEVANTS
PRESSURE
BLOWER.
Are for sale by
Berry & Place,
112 California st.,
San Francisco,
who have the differ-
ent sizes always in
store. 4v22

THE ANGEL'S QUARTZ MINE
Shaft is over 400 Feet Deep,
and is kept free from water in
its lowest level by the




BLAKE STEAM PUMP
SOLD BY
BERRY & PLACE,
112 California st., San Fran-
cisco. 4v22

For
Steam Pipes
& Boilers

Hair Felting
Saves 25 per cent. For Sale by **BERRY & PLACE,**
112 California street, San Francisco.

STEAM JET PUMP.
Blakes & Williams' Patent, for
Water, Oils, Acids, Etc.

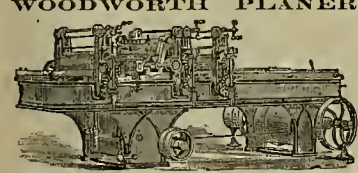


The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, BISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.
We ask the attention of
all proprietors of steam
power to the following
points of merit:—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.
Satisfaction guaranteed or the money refunded.
Send for Circular. **PARKER & HUNT,**
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEL & BARGION, Stockton. Can be seen at
McAFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f
(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.
900 pages, large 4-to, profusely illustrated.
This is the only compend of
GAS LIGHTING
ever projected, and will be the standard work of refer-
ence among
Companies,
Manufacturers,
Engineers,
Patentees, and
Scientific Men
Generally.
Price \$15.00, Payable on Delivery.
It will be sold only by subscription, which should be
addressed to the Compiler,
JAMES R. SMEDBERG,
Consulting Engineer S. F. Gas Co.,
26v21-4f SAN FRANCISCO, CAL.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.
Cash Capital, \$300,000
GOLD COIN
OFFICE, 436 CALIFORNIA STREET.
Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
D. ROTHSCHILD, Secretary. 20v17

WOODWORTH PLANERS.

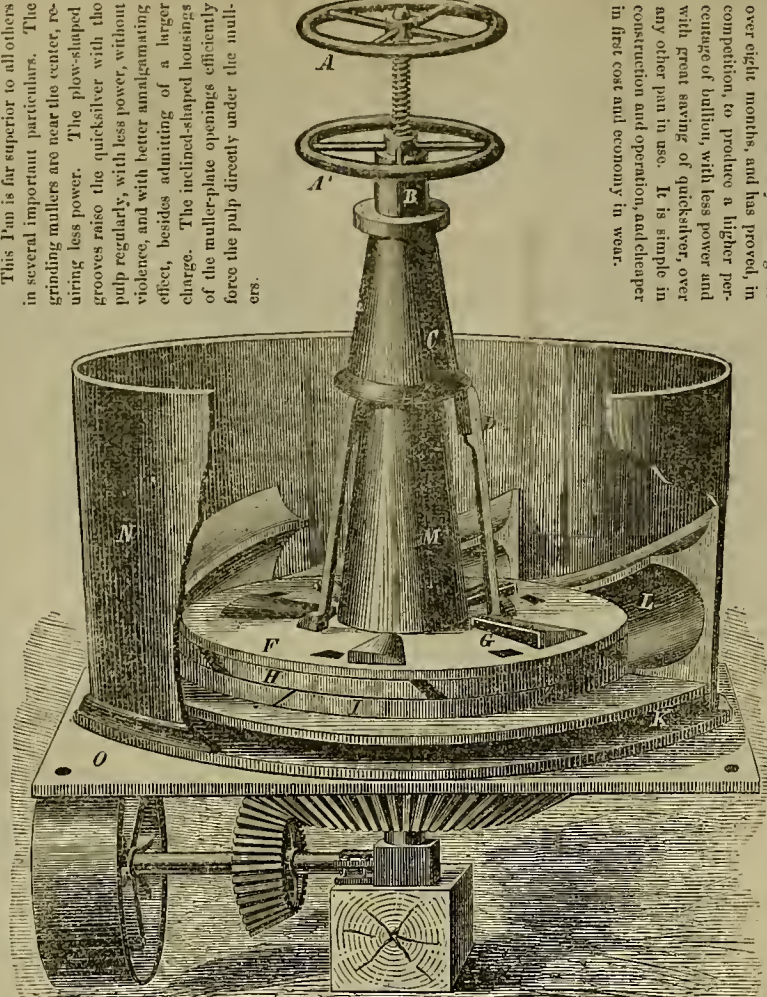


Smith's Patent Wood-working Machinery of all de-
scriptions. Sole Agents, **BERRY & PLACE,**
112 and 114 California St., San Francisco.

FROM THE WEED
\$65 Sewing Ma-
chines—the
WHOLE WORLD
before judges—as they
are the LAST, or also
are BEST? Why?
Because the WEED
Machines TO
work and
or simple—
easier and with more
VARIETY. Buy the
LATEST! Always. Call
and see S. E. Hoar, 329
Kearny St. S. F. Ast

Complete Volumes—Bound or unbound—of the
SCIENTIFIC PRESS from Jan. 1, 1864, to date, can be had
at reasonable rates at this office. They contain much
valuable information.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

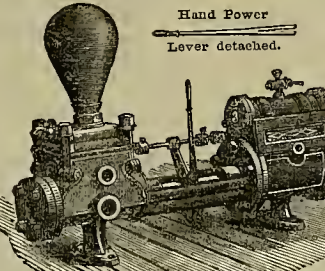


This Pan is far superior to all others
in several important particulars. The
grinding mullers are near the center, re-
quiring less power. The plow-shaped
grooves raise the quicksilver with the
pulp regularly, with less power, without
violence, and with better amalgamating
effect, besides admitting of a larger
charge. The inclined-shaped housings
of the muller-plate openings efficiently
force the pulp directly under the mul-
lers.


It has been constantly running for
over eight months, and has proved, in
comparison, to produce a higher per-
centage of bullion, with less power and
with great saving of quicksilver, over
any other pan in use. It is simple in
construction and operation, and cheaper
in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,
Where it can be examined and further particulars be learned; or persons may apply to the inventor and pat-
entee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pan has been long
been in constant operation. 15v20-1m, lam1f

BLAKE'S PATENT STEAM PUMP.



These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed
in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power.
Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be
run slow or fast, as may be de-
sired. Will discharge more water
than any others of the
same dimensions. Has no leaky
joints, the steam part being cast
in one entire piece. The steam
valve is perfectly balanced, is
cushioned at each end, and
slides with the greatest facility
having no cams, nor complex
Rotary arrangements to get out
of order. Will start at any
point of the stroke, and will dis-
charge all the water of condensa-
tion. The Pump has no crank
or fly-wheel, thereby saving a
considerable item of expense to
the purchaser. Having no dead
points, it therefore needs no
watching, and is consequently
ready to start without using a
starting bar or any hand work
whatever. The Blake Pump is
extensively used on Railroads
and Steamboats; in Hotels; for
Mining and Fire purposes; in
Breweries, Tanneries, Sugar
Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and
deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and conse-
quently the best Steam Pump ever built. For sale by **BERRY & PLACE,** Machinery Depot, 112 and 114 California st.,
San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



N. P. Labland,
STAIR BUILDER,
485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

THE
CAMERON SPECIAL STEAM PUMP!
A large stock of assorted sizes constantly on hand.
DOUBLE PLUNGER STEAM PUMPS,
FOR DRAINING MINES.
Made to order for any lift whatever.
DAVID STODDART, 114 Beal st., San Francisco.

VAN NOSTRAND'S
Electric Engineering Magazine,
Commenced January, 1869.

Consists of articles selected and matter condensed
from all the Engineering Scientific Serial publications
of Europe and America.
The third volume of this Magazine is completed by
the issue for December.
The growing success during the past two years demon-
strates the correctness of the theory upon which the en-
terprise was founded. Communications from many
sources prove that the Magazine has met a widespread
want among the members of the engineering profession.
A summary of scientific intelligence, selected and sifted
from the great list of American and European sci-
entific journals is at present afforded by no other means
than through the pages of this Magazine.
In the next volume, beginning with the January num-
ber, we shall commence some important improvements.
Each number of the Magazine will hereafter contain
something of value relating to each of the great depart-
ments of engineering labor.
More space than heretofore will be devoted to short
discussions or circulations of important formulae, espe-
cially such as have proved valuable in the practice of
working engineers; our facilities for affording such items
are extensive and rapidly increasing.
The progress of great engineering works in this coun-
try will be duly chronicled.
Selected and condensed articles, with their illustra-
tions, from English, French, German, Austrian, and
American scientific periodicals, will contribute to make
this Magazine more than ever valuable to the engineer-
ing profession, and will afford a compilation without
which the library of the working engineer will be in
complete.
112 Pages, Large 8vo. Illustrated Monthly.
Price \$5.00 a year in advance, single copies fifty cents.

Notice to New Subscribers.
Persons commencing their subscriptions with the
3d year (January, 1871), and who are desirous of possess-
ing the work from its commencement, will be supplied
with Volumes I., II., and III., neatly bound in cloth, for
\$10.00, sent free by mail on receipt of price.
Notice to Clubs.
An extra copy will be supplied gratis to every club
of five subscribers at \$5 each, sent in one remittance.
D. VAN NOSTRAND,
Publisher, Importer and Bookseller, 23 Murray and 27
Warren street, NEW YORK. 5v23-4t

THE AMERICAN CHEMIST

EDITED BY
CHAS. F. CHANDLER, Ph. D., and W. H. CHANBLER.

TABLE OF CONTENTS
For September and October, 1870

Articles:—
On the Analysis of Coal-Tar Colors. By W. H. Perkins.
London Gas Refractories and the Sulphur Question. By W.
Electro-Deposition of Copper and Brass upon Iron. By W.
H. Walcott.
Electro Coating Iron with Copper and Brass. By W. H.
Walcott.
The Various Qualities of Sugar produced in Cuba, and the
Different Modes of Manufacture. By Edward Beates.
Carbonic Photographs. By W. H. Chandler.
On some circumstances which favor the simultaneous Pre-
cipitation of Alumina and Magnesia by Ammonia. By
Laurence F. J. Winkler.
On estimation of Ferrous Oxide in Presence of Ferric
Oxide in Siliceous Minerals. By Charles A. Wilbur and
Walter Whitteley.
The Nineteenth Meeting of the American Association for
the Advancement of Science.
On the Temperature and Heating Powers of Flames. By
W. M. Watts.
Experiments on the Effect of Alcohol (Ethyl Alcohol) on the
Human Body. By E. A. Parkes and Count C. Wol-
lowitz.
Composition and Quality of London Waters.
Analysis of a Zinc Ore from Blair Co., Pa. By L. Preston
Ashland.
On the Precipitation of Metals of the Magnesium Group in
the Form of Oxalates. By W. Goud Leeson.
Heinrich Gustav Magnus. By A. Oppenheim.
Analysis of Deep Sea Water. By John Hunter.
On Animal Charcoal in its use in Sugar Refining. By Dr.
Wallace.
On the Estimation of Peroxide of Manganese in Mangan-
ese Ores. By John Pattison.
Assay of Manganese Ores. By Edward Sherrin.
Zinc and Sulphurous acid. By E. W. Gibson.
Determination of Carbon in Steel. By W. D. Herman.
Presence of Potash in Chromate of Lead. By T. L. Philip-
son.
Concentration of Bisulphide of Carbon. N. V. Wartha.
Determination of Iron in Cast-iron. By C. Menz.
New Method of Heating Stoneware Vessels. By J. A.
Coffey.

Chemical Notices:—
From Foreign Sources, comprising 24 compact pages of Crit-
ical Notes on upward of 350 Chemical Papers which
have been published in the last two months.
Recent Chemical Patents.
Brevelles.
Books Received.
Answers to Correspondents.
Questions from Correspondents.
Everything of value in the English Chemical News is re-
printed verbatim for the benefit of our readers.
Single Copies 50 cents. Subscription per Annum \$5 in advance
SEND FOR SPECIMEN NUMBER.

WILLIAM BALDWIN & CO., Publishers,
344 Broome Street, N. Y. 21v20-1am3t

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Spe-
cial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

POPULAR LECTURES.

Vaporization and Elastic Force of Steam.

[Prof. JOHN LECONTE before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the Press.]

Heat and Work.

LECT. V., Feb. 11.—In my last lecture, said the Professor, I stated that heat was convertible into work and work into heat. It is of importance to find out how much work is necessary to generate a certain amount of heat, or how much heat is required to perform a certain amount of work. The most accurate experiments to determine this were made by J. P. Joule, of Manchester, England, who was engaged from 1843 to 1849 in these researches. Before speaking of these, I must say something about what the units of heat and work are. If we measure anything, we must have a unit to refer to. Thus, for distances we have a unit of length; for weights a unit of weight, etc.

All units are necessarily arbitrary, and unfortunately different nations have chosen different units. The English unit of work is that required to raise one pound one foot high, or, as it is called, one "foot-pound." The French unit is a meterkilogramme, raising one kilogramme one meter. The English unit of heat is the amount of heat necessary to raise the temperature of one pound of water from 32° to 33° Fah. The French unit is the amount required to raise the temperature of one kilogramme of water from zero to 1° Cel.

Joule sought to ascertain the relation of heat and work by means of the apparatus here shown. In a copper vessel, A, were sixteen metallic paddles, *a*, eight in a horizontal row, attached to a shaft, *d*, and revolving between eight strips of metal, *c*, which were fastened to the sides of the vessel. The vessel was filled with water and the paddles made to revolve by the weights, B and D, which sank down a distance of 63 inches. When these touched the ground, the pin, *o*, connecting the shaft and the cylinder around which was wound the cords, was taken out, the weights wound up without moving the paddles, the pin replaced and the operation continued. When the weights had sunk 20 times, the temperature of the water was taken and the heat generated by the motion of the paddles thus found, and the mechanical work of the weights was calculated. The experiments were repeated with mercury and an iron vessel; also by rubbing two metals together. In each instance the increase of heat was found and the work performed; thus was obtained the relation of the heat developed and the work done. Then he calculated how much work was equivalent to the unit of heat.

Result of Experiment—Heat and Motion.

Joule's experiments established two things: 1st. The quantity of heat produced by the friction of bodies is always proportional to the work performed and is independent of the surfaces employed. 2d. The mechanical equivalent of a unit of heat is 772 foot pounds. That is, the work necessary to raise 772 lbs. one foot, or one pound 772 feet, is sufficient to generate heat enough to raise one pound of water one degree. Or, in other words, 772 lbs. falling one foot, or one pound falling 772 feet, would suffice to generate the same heat. The experiments of Joule's are regarded as most delicate and the results most accurate, the probable error being not over 1-300 of the figure given.

We can reduce this to horse-power. As one horse-power is taken as 33,000 foot pounds per minute, it is therefore equal to 42.75 lbs. of water heated 1° (Fah.) per minute.

The principle of the convertibility of heat and motion leads us to interesting conclusions. If a mass of lead weighing 38.6 lbs. fall 100 feet, this would be sufficient to heat one foot of water 5 degrees. For

$$\frac{38.6 \times 100}{772} = 5 \text{ units of heat.}$$

If the motion is horizontal the case is the same. If a cannon ball strikes a target, heat is generated, and we can easily calculate the amount of heat. In firing a lead ball against an iron (or other hard) target, we often get heat enough to melt the ball, as has been proved. Fairbairn says that at Shrobury, England, where experiments have been made with the Whitworth and the Armstrong cannon, he has seen,

even in daylight, a broad sheet of flame when the balls struck the target.

Best Possible Work of Steam Engines.

If we compare the mechanical effect obtained by our steam engines with the heat used, we find that only a small portion of the mechanical equivalent of the heat is obtained. It has been claimed that some of the best Cornish engines have given 20 per cent. or one-fifth; but this statement is doubted. The ratio varies from 1-50 to 1-5, the former being exceedingly low and the latter very high; we may say for ordinary cases from 1-25 to 1-8.

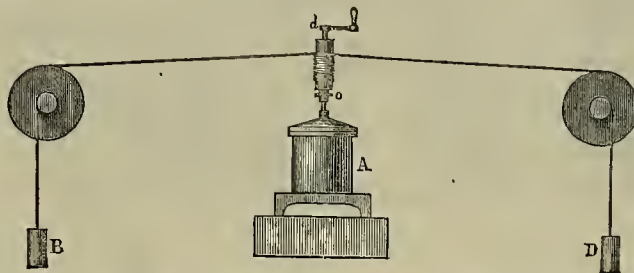
The total heat produced by the combustion of our fuel is expended in producing the following effects:

1. The waste heat of the furnace; say, all the way from 15 to 60 per cent.
2. The necessarily rejected heat used up in internal work.
3. The heat wasted by the engine, by conduction, etc.
4. The useless work of the engine, as in overcoming friction, etc.
5. The useful work performed.

Now in regard to points 1, 3 and 4, the mechanic can do much, but in regard to point 2, the case is different. If we had an engine of absolute perfect theoretical construction, with no waste heat, friction, or other imperfection, it would give only a partial return of the heat produced by combustion of the fuel. The amount of this necessarily rejected heat has been reckoned. The following formula gives the maximum work possible with a perfect engine:

$$\text{Maximum Work} = H \times \frac{a-a'}{a} = H \left(1 - \frac{a'}{a}\right)$$

Here *H* is the whole heat going into the engine, *a* is the absolute temperature of the boiler, and *a'*, that of the condenser.



By the absolute heat, we mean the heat reduced to the absolute zero of the gas thermometer; that is, to the point where the gas loses all elastic force, viz. at about 273° below zero, Celsius.

Now if the temperature of the boiler = 152° (Cel), and therefore its absolute heat



= 152 + 273 = 425°; and the temperature of the condenser = 30°, or absolute temp. = 30 + 273 = 303°,—the maximum effect will be

$$H \times \frac{425-303}{425} = H \times \frac{122}{425} = 0.28\frac{1}{2} H, \text{ i. e.}$$

the maximum effect can be only 28½ per cent. of the whole amount of heat used. If the temperatures were 180° and 30°, it would be about 33 per cent. If they were 202° and 30°, it would be about 36 per cent. If they were 134° and 30°, as is about the case with Cornish boilers, it would be about 25½ per cent. If they were 400° and 100°, it would be 44 per cent.

Now there are several ways in which we can reduce this amount of necessarily rejected heat used in internal work, and thus hope to better our engines. One is by keeping the boiler and also the condenser at fixed temperatures, which is already pretty well accomplished. Another, as is obvious from the formula, is by having the greatest difference between the temperature of the boiler and that of the condenser (*a* and *a'*). This may be accomplished in two ways: by making the condenser very cold or the boiler very hot. But we cannot practically very well cool down the condenser below the temperature of its surroundings, the air etc. Hence the only way left is to make the boiler very hot.

But so far as saturated steam (steam generated and heated in the presence of water) is concerned, we have already nearly reached the limits of safety. Hence we are

forced to look to the use of super-heated steam (not in the presence of water) for an advancement. Or we may look to some gas or vapor. To obviate the loss incurred in the manner just treated of, Ericsson has attempted to use heated air, and his "caloric engine" will be remembered by many. If the mechanical difficulties thereby incurred can be overcome, hot air may play an important part in this way.

In What is Energy Stored up?

The stores from which man derives energy may be reduced to the following:

1. Food of Animals. The food is burned up, and thus is obtained the heat necessary for existence and also for work. If we reckon the mechanical equivalent of the heat thus produced, we find that the horse-machine or the man-machine is far more perfect than the steam engine. [A ton of hay will produce much more work if eaten by a horse than if burned under a boiler.]
2. Solid matter in elevated positions. This is limited in amount.
3. Natural motion of water and air.
4. Natural combustibles, as wood, coal, etc.
5. Artificial combustibles, as prepared chemicals. Limited.
6. Natural heat.

Now we can trace all the energy accumulated in these stores to three sources:

- A. Solar heat and light.
- B. Motion of Earth; action of moon and sun.
- C. Terrestrial sources; hot springs, native sulphur.

As far as man is concerned, we may say that all his energy is derived from the sun. His food is vegetable; either directly, or derived through animals. Now the vegetables grow exclusively through the influence of solar light and heat. Their leaves

are the laboratories in which these agencies work with tremendous force, decomposing carbonic acid and storing up the carbon. This force come again into play when man, by eating, burns up this carbon. So with the combustibles, coal and wood, etc. So with water-power; the sun has heated and evaporated the water, which is condensed and falls in high places to again return to the sea. With tides, it is different. Yet nearly all energy may be referred to the sun.

The Sun's Heat—Man Condensed Sunlight.

Is this supply of power (in the sun) sufficient for all these purposes? Pouillet has calculated that the heat expended on each square meter of surface every minute is equal to about 0.4 horse power, or a total of 211,000,000,000 horse-power per minute. If we estimate the amount of water evaporated by the rain-fall, this is sufficient to form a stratum five feet deep, while this heat of the sun would be able to evaporate a stratum 12½ feet deep. Hence we have heat enough to evaporate a stratum of water 7¼ feet deep left to sustain the growth of vegetables, give rise to winds, etc., etc. It would seem, however, only a question of time as to how long this source of energy will exist.

Looking from this point of view, it does not seem so strange that the Orientals should have worshipped the sun, although they knew not how much they were indebted to it. In one sense, men can be called merely condensed sunlight. The monarch and the peasant are but children of the sun; but to this brotherhood belong just as much the Ichthyosaurus, the Trilobite, the spider and the fly.

You will remember how Gulliver in his travels came across a certain set of abstract philosophers who were engaged in extracting sunbeams from cucumbers. After what has been said, this does not appear altogether so ridiculous; the sun's light and heat can be obtained in part therefrom. The proverb says that "love-sick swains and languishing maids feed on moonbeams;" and philosophers show that the moon's feeble light does do something for the growth of vegetables, and therefore may be converted into the energy expended in a sentimental serenade or a long-drawn sigh.

In concluding his remarks, the lecturer

expressed the opinion that of all the discoveries of the century, that of the correlation of forces will be hereafter esteemed the greatest. He dwelt on the importance of this and the great influence it has on other subjects. This lecture finished Prof. John LeConte's series. E. S. Carr, Professor of Agriculture and Agricultural Chemistry, will deliver the next course.

Ice-Boats and Fast Trains.

The Dutch amusement of steel-runner boat-sailing on the ice has been introduced upon the Hudson. There is a club at Poughkeepsie which owns a number of such boats, two of which are called the Zephyr and the Icicle. A short time ago these boats had a race with the Chicago Express train on the Hudson River Railroad. The race is thus described by a correspondent of the New York Times.

On the day named, the wind blew hard from the southwest, striking the boats on the quarter. Both vessels were on the ice north of the Whale Dock, and at a standstill within one hundred feet of the east shore, when the whistle of the locomotive of the train with which they were to race sounded. This to the tiller-men of the Zephyr and Icicle was a starting signal. In an instant they were in their boats lying at full length, when they "down stick" and put their crafts on the wind. Then came the race. The passengers on the cars raised the windows and waved their hats and handkerchiefs; the engineer blew tantalizing whistles as his train thundered through the rock-cuts and over bridges, leaving the ice-boats gradually way astern.

Suddenly the breeze freshened. The canvas on the boats swelled out, the rigging tightened, the steel runners commenced humming over the clear, smooth, black ice, and then the tiller-men of the boats knew they had their iron-bound adversary. The Zephyr rapidly overhauled the lightning train with "bow dead to the north," and then the excitement all over the train, from the engineer to the hind brakeman, was of the liveliest nature. Close behind the Zephyr followed the Icicle, boats flying along with lightning rapidity. Again the waving of handkerchiefs and hats and the blowing of the locomotive whistle added excitement to the scene. Soon the novel craft had passed the fast train and were far ahead, slipping over the ice at the rate of a mile a minute. Never was there a prettier race and never was a railroad train, and a fast train at that, so very badly beaten. Running into the poor ice district the victors whirled about like a flash and headed down the river, again giving the engineer of the train as it came along a parting wave, the latter sending whistling shrieks from his machine in response, and the passengers also giving farewell waves of hats and handkerchiefs.

The winter has been unusually favorable for such sport. Reports from all points east and north, on Sunday last, showed intensely cold weather. The Hudson was frozen up again above Peekskill. At Montreal the thermometer marked 26° below zero, and at Toronto 17°.

THE LOWEST TYPE OF HUMANITY.—

On the Island of Borneo there has been found a certain race of wild creatures, of which kindred varieties have been discovered in the Philippine Islands, in Terra del Fuego, and in South America. They walked unusually, almost erect on two legs, and in that attitude measure above four feet in height. They are dark, wrinkled and hairy. They construct no habitations, form no families, scarcely associate together, sleep in caves or trees, feed on snakes and vermin, on ants, eggs, and on each other. They cannot be tamed or forced to any labor, and are hunted and shot among the trees like the great gorilla, of which they are a stunted copy. When they are captured alive, one finds with surprise that their uncouth jabbering sounds like articulate language. They turn up a human face to gaze at their captors, and females show instincts of modesty; and in fine, these wretched beings are men.—*Atlantic Monthly*.

WALKING.—A scientific lecturer on walking says his experiments show that one side of the body always tends to outwalk the other side. It is not possible when the eyes are shut to walk in a straight line for any length of time, and it will be found where persons lose their way, that they almost invariably wander off to the right rather than to the left.

UNWORKED COPPER VEINS.—The *Territorial Enterprise* thinks that Nevada has copper veins rich enough to pay for working. It cites a couple of instances of rich deposits, thus:

In 1861, a friend of ours discovered a copper mine near Pyramid Lake, and brought in from the lead ten or fifteen pounds of specimens of native copper; but no one would look at copper at that time, and our friend never went back to his mine. The mine is still there and the native copper is to be seen upon the very surface for a space of over 1,000 feet where the lead runs through the serpentine rock. A day or two since, a man who is herding stock near the lake brought in from the lead a whole barley sack full of native copper. Some of the specimens were six inches in length and of beautiful forms resembling oak leaves and the leaves of maples and other trees. Although all admired the specimens, not a man could be found who cared enough about the mine to accept a share as a free gift, and the gentleman who brought in the specimens left the town disgusted with his mine and all our capitalists. There the lead lies, native copper on the surface for over 2,000 feet, and as yet no one has ever dug into it even to the depth of one foot. They all cite Copperopolis, California, and with a shrug of the shoulders say, "Copper don't amount to anything."

NEW NARROW GAUGE PROJECT.—A narrow gauge road between San Francisco and Menlo Park is projected. According to the *San Mateo Gazette*, residents along the proposed route are working for it, and nearly enough money has been subscribed to meet the expenses of a preliminary survey. The route will probably be along the Bay between San Mateo and this city, and the estimated cost is about \$300,000.

1000 Farms

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Ranch," 200 square miles in sections, quarter sections, etc., on Government system survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO, LYNCH, at Anaheim and Los Angeles. 1722-2ms

SUCCESS IN BUSINESS.—Success in the business world usually depend upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can be discussed here. Call at the College and examine its workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 2372-3ms

MARAVILLA COCOA.—For Breakfast.—The *Globe* says: "Various imitations and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 1572-3

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Miller's Brazilian spectacles are acknowledged to be the best in use.

LEA & PERRINS' CELEBRATED

Worcestershire Sauce.

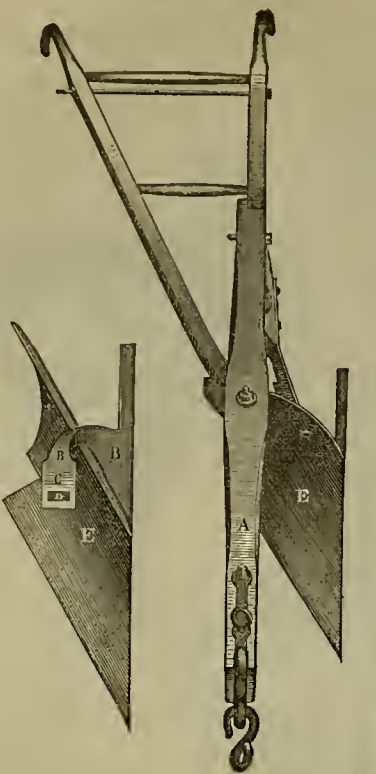
Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unexcelled Condiment having caused its name to be applied to the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1722-1700w

THE FULTON IMPROVED PLOW.

Patented September 27, 1870.



See last No. of the Press for description, or address the inventor for circular, DAVID FULTON, St. Helena, Napa county, Cal.

The California Powder Works

NO. 314 CALIFORNIA STREET, SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING, MINING, AND BLASTING POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the most ELASTIC POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16720-3m JOHN F. LOHSE, Secretary.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening, which is the very latest hour we can receive advertisements.

Deep Spring Milling and Mining Company.

Location of Works, Deep Spring Valley Inyo County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of January 1871, an assessment of \$1 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Treasurer at his office 306 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 25th day of February 1871 shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment be made before, will be sold on Saturday the 4th day of March 1871, to pay delinquent assessments, together with costs of advertising and expenses of sale. By order of the Board of Trustees. A. H. JORDAN, Sec'y pro tem. j228 [340 Montgomery st., San Francisco Cal.

Eagle Quicksilver Mining Company.

Location of works, Santa Barbara County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 5th day of February, 1871, an assessment of twenty (\$20) dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California. Any share upon which said assessment shall remain unpaid on Tuesday, the 4th day of April, 1871, shall be deemed delinquent, and will be duly advertised April 6th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery street, San Francisco, California. fil-5w

El Refugio Petroleum Company,---Location Santa Cruz County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company held on the 18th day of January 1871, an assessment of sixty five (65) cents per share was levied upon the capital stock of said Company payable immediately in United States gold coin, to the Secretary R. Wegener, No. 414 California street San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 21st day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday the 14th day of March 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. WEGENER, Secretary. j221 Office, 414 California street, San Francisco, Cal.

Jennie A. Consolidated Mining Company,---

White Pine County, Nevada. Notice.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 15th day of December, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A Deligne.....	1	2,000	200 00
A Deligne.....	2	1,000	100 00
S Hanson.....	3	2,000	200 00
S Hanson.....	4	1,000	100 00
S Hanson.....	5	100	10 00
S Hanson.....	6	100	10 00
S Hanson.....	7	100	10 00
S Hanson.....	8	100	10 00
S Hanson.....	9	100	10 00
S Hanson.....	10	100	10 00
S Hanson.....	11	100	10 00
S Hanson.....	12	100	10 00
S Hanson.....	13	100	10 00
S Hanson.....	14	100	10 00
S Hanson.....	15	1,000	100 00
J H Cook.....	16	1,000	100 00
J H Cook.....	17	500	50 00
J H Cook.....	18	500	50 00
J H Cook.....	19	250	25 00
J H Cook.....	20	125	12 50
J H Cook.....	21	125	12 50
J H Cook.....	22	100	10 00
J H Cook.....	23	100	10 00
J H Cook.....	24	100	10 00
J H Cook.....	25	100	10 00
J H Cook.....	26	100	10 00
J H Cook.....	27	100	10 00
J H Cook.....	28	75	7 50
J H Cook.....	29	75	7 50
J H Cook.....	30	50	5 00
J H Cook.....	31	50	5 00
J H Cook.....	32	50	5 00
J H Cook.....	33	25	2 50
J H Cook.....	34	25	2 50
S McHenry.....	35	2,000	200 00
E W Warren.....	36	2,000	200 00
Lathrop Dunn.....	37	100	10 00
Lathrop Dunn.....	38	100	10 00
Lathrop Dunn.....	39	100	10 00
Lathrop Dunn.....	40	100	10 00
Lathrop Dunn.....	41	100	10 00
Lathrop Dunn.....	42	100	10 00
Lathrop Dunn.....	43	100	10 00
Lathrop Dunn.....	44	100	10 00
Lathrop Dunn.....	45	100	10 00
Lathrop Dunn.....	46	100	10 00
Lathrop Dunn.....	47	100	10 00
Lathrop Dunn.....	48	100	10 00
Lathrop Dunn.....	49	100	10 00
Lathrop Dunn.....	50	100	10 00
Lathrop Dunn.....	51	100	10 00
Lathrop Dunn.....	52	100	10 00
Lathrop Dunn.....	53	100	10 00
Lathrop Dunn.....	54	100	10 00
Lathrop Dunn.....	55	100	10 00
Lathrop Dunn.....	56	100	10 00
Lathrop Dunn.....	57	100	10 00
Lathrop Dunn.....	58	100	10 00
Lathrop Dunn.....	59	100	10 00
Lathrop Dunn.....	60	100	10 00
Lathrop Dunn.....	61	100	10 00
Lathrop Dunn.....	62	100	10 00
Lathrop Dunn.....	63	100	10 00
Lathrop Dunn.....	64	100	10 00
Lathrop Dunn.....	65	100	10 00
Lathrop Dunn.....	66	100	10 00
Lathrop Dunn.....	67	100	10 00
Lathrop Dunn.....	68	100	10 00
Lathrop Dunn.....	69	100	10 00
Lathrop Dunn.....	70	100	10 00
Lathrop Dunn.....	71	100	10 00
Lathrop Dunn.....	72	100	10 00
Lathrop Dunn.....	73	100	10 00
Lathrop Dunn.....	74	100	10 00
Lathrop Dunn.....	75	100	10 00
Lathrop Dunn.....	76	100	10 00
Lathrop Dunn.....	77	100	10 00
Lathrop Dunn.....	78	100	10 00
Lathrop Dunn.....	79	100	10 00
Lathrop Dunn.....	80	100	10 00
Lathrop Dunn.....	81	100	10 00
Lathrop Dunn.....	82	100	10 00
Lathrop Dunn.....	83	100	10 00
Lathrop Dunn.....	84	100	10 00
Lathrop Dunn.....	85	100	10 00
Lathrop Dunn.....	86	100	10 00
Lathrop Dunn.....	87	100	10 00
Lathrop Dunn.....	88	100	10 00
Lathrop Dunn.....	89	100	10 00
Lathrop Dunn.....	90	100	10 00
Lathrop Dunn.....	91	100	10 00
Lathrop Dunn.....	92	100	10 00
Lathrop Dunn.....	93	100	10 00
Lathrop Dunn.....	94	100	10 00
Lathrop Dunn.....	95	100	10 00
Lathrop Dunn.....	96	100	10 00
Lathrop Dunn.....	97	100	10 00
Lathrop Dunn.....	98	100	10 00
Lathrop Dunn.....	99	100	10 00
Lathrop Dunn.....	100	100	10 00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of December, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the company, by the Secretary, 37 New Merchants' Exchange, San Francisco, on the 27th day of February, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary. Office, 37 New Merchants' Exchange, California street, San Francisco, California. fe-11

Kincaid Flat Mining Company—Location

of works, Tuolumne County, California. Notice.—There are delinquent upon the following described Stock, on account of assessment levied on the 15th day of December, 1870, the several amounts set opposite the names of the respective Shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
James Wilson.....	1	10	\$25 00
James Wilson.....	2	10	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of January, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Kincaid Flat Mining Company, 220 Clay street, San Francisco, on the fourth day of March, 1871, at the hour of 4 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of Advertising and expenses of sale.

D. H. CROWE, Secretary. fe18-6w Office, 220 Clay street, San Francisco.

Marble Falls Mining Company,---Location

of Works: Mammoth District, Nye County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixth day of February, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company Room No. 4, No. 302 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. JAS. N. STUYDAM, Secretary. Office, Room No. 4, No. 302 Front street, San Francisco, California.

Nevada Land and Mining Company—Lo-

cation of Works, Steptoe, Johnson & Latham Anlelope and Clifton District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 19th day of January, 1871, an assessment of two and one half (2½) cents per share was levied upon the Capital Stock of said Company, payable immediately in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 20th day of February, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary. Office, Room 5, No. 302, Montgomery street, San Francisco, California.

Stockholders' Meeting—Office of Silver

Sprout Mining Company, 206 Front street, San Francisco, California. Notice is hereby given, that a special meeting of the Stockholders in the Silver Sprout Mining Company will be held at the office of the company, No. 206 Front street, San Francisco, on Monday, the 20th day of March, 1871, at the hour of 2 o'clock P. M.

fe18-4w T. B. WINGARD, Secretary.

Noonday Silver Mining Company.—Loca-

tion of Works—White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 19th day of January, A.D. 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, No. 419, California street, San Francisco, California.

Any stock upon which assessment shall remain unpaid on the 23rd day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 17th day of March, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

C. E. ELLIOTT, Secretary. Office, Room 21, Hayward's Building, 419, California street, San Francisco, California.

North America Consolidated Mining Com-

pany—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the company's office, Room 8, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 29th day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 27th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. W. M. H. WATSON, Secretary. Office, Room 8, No. 302 Montgomery street, San Francisco, Cal. fe18-6w

Ophir Copper, Silver and Gold Mining

Company—Location of Works, Ophir, Placer County, California.

Notice.—There are delinquent upon the following described Stock, on account of Assessment levied on the 15th day of December, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Aldrich, E. K.....	52	37	\$1 00
Aldrich, E. K.....	137	44	4 00
Adrian, Mrs E.....	135	100	40 00
Adrian, Mrs E.....	136	100	40 00
Bromley, John.....	228	17	6 50
Baldwin, Sarah.....	211	12	4 80
Choate, N.....	89	25	10 00
Cogshall, T C.....	180	12	4 80
Higgins, Chas.....	155	137	54 80
Higgins, Chas.....	153	16	6 40
Hamilton, J. E.....	180	50	20 00
Hamilton, J. E.....	188	5½	2 20
Halshaw, W.....	169	32	12 80
Halshaw, W.....	224	27½	109 60
Halshaw, W.....	128	200	80 00
Halshaw, W.....	174	23½	9 40
Leahy, Joseph.....	135	100	40 00
Leahy, Joseph.....	136	100	40 00
Leahy, John.....	151	87	34 80
Leahy, John.....	167	10	4 00
Miller, W. E.....	173	22½	10 20
Miller, W. E.....	187	32	12 80
McMurray, Mrs E, original stock.	137	137	54 80
McMurray, Mrs E.....	178	16	6 40
McCurdy, E.....	173	200	80 00
McCurdy, John R.....	190	12	4 80
McCurdy, John R.....	212	200	80 00
Peck, Wm E.....	163	50	20 00
Peck, Wm E.....	189	53½	21 40
Ringer, John.....	167	16	6 40
Ringer, John.....	157	13	5 20
Sickles, F.....	157	17	6 80
Sickles, F.....	183	1	40
Shaffer, John.....	140	16	6 40
Shaffer, John.....	191	16	6 40
Streep, Chas.....	161	200	80 00
Streep, Chas.....	200	200	80 00
Thorp, Thos.....	203	12	4 80
Thorp, Thos.....	204	12	4 80
Till, George.....	131	100	40 00

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How-
street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris, Lloyd Tevis, Wm. Alvord,
Joseph Moore, Chas. E. McLane,
John N. Risdon.

WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NELSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Unbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
(6v1) SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO

EUREKA FILE WORKS.

311



Bet. Fremont and
Beale,

MISSION ST.,

SAN FRANCISCO

T. G. BURNING, Superintendent.

New Files of every description made to order. Files
re-cut and warranted equal to new. Reaper and Mower
sections, bars, etc., made to order at short notice. Or-
ders from the country promptly attended to. 22v22kf

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one
of the safes, containing Miller & Haley's books and pa-
pers, stood the test PERFECTLY,—to whom all interested
are referred. This safe is built at the

CALIFORNIA TOOL WORKS,

143 Beale Street, bet. Mission and Howard. All kinds of
Edge and other Tools made to order. Agricultural ma-
chinery repaired. Job grinding and polishing by steam.
All work warranted. Orders promptly attended to.
22v22-3m J. WEICHBART, Proprietor.

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.
2v21-tf

DARLING & CO.,

Importers, General Agents and Commission Merchants.

Machinery, Merchandize and Supplies of every description Purchased and Sold on
Commission,

AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS

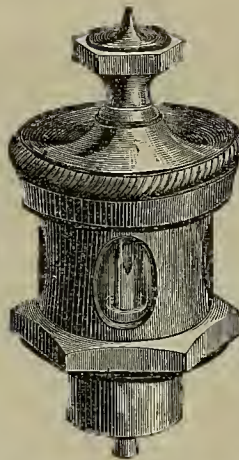
SELF OILERS.

These Oil Cups are too well known
to require any lengthy description;
the following are the main points
of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transpar-
ent Glass Cap, mounted in Brass,
provided with a hollow tube, inside
of which is placed a loose acting
solid or hollow wire, which acts as
a Feeder and Regulator. The wire
rests constantly upon the Journal,
thereby acting with the bearing in
its motion. The wire is so regu-
lated inside the tube as to feed ac-
cording to the demand only. There
is no flow of oil whatever while the
machinery is not in motion.



They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proved by four years' con-
stant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give
perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position
or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you
desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal
that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed
NATHAN & DREYFUS, New York, Jan. 1st., 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

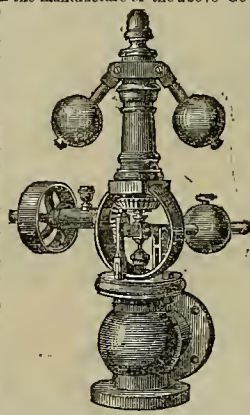
After an experience of eleven years in the manufacture of the above Governor, during which time several im-
portant improvements have been made and two additional patents obtained
we feel justified in recommending it to all parties using Steam power, and
warranting it to be the most perfect
regulator in the market.

The Gardner Governor is so well
known that we think it unnecessary
to enter into a detailed explanation of
the principle involved, or details in its
construction, merely giving the leading
objects realized by this important in-
vention. The Governor combines with
the greatest simplicity of construc-
tion, accurate regulation of speed, pos-
itive insurance against all accidents
liable to occur from slipping or parting
the Governor or driving belts, and a
convenient arrangement for adjusting
the speed of the Engine while in mo-
tion, without change of pulleys.

The construction of the Governor is
extremely simple, having no springs,
inside joints, swivels or parts liable to
disarrangement, all the several parts
are duplicates of each other in the same
series; the most skillful workmen are
employed, the best material used and
the machinery employed especially
adapted to their manufacture. Thus

we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheer-
fully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE OR WITHOUT THROTTLE VALVE; and either
BLACK OR FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special ad-
vantages.

FIRST—Notbing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind.

SECOND—Its great economy of both tallow and fuel.

THIRD—It is self-acting, and supplies the lubricating material only while the Engine is in motion.

FOURTH—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in con-
siderable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and
allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this cup, by its peculiar
action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated
or gassed before passing into the steam chest or Cylinder; the consequence is that instead of falling to the bottom
of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the
cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the
engine become regularly and constantly greased. The result of its action has been proved in a very great number
of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in
fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent of the Lubricating Material, and cost
no more than the common Compression Cups.

The Above Goods are Sold at Factory Rates.

For Price Lists or information address DARLING & Co., 629, Washington Street

San Francisco, California.

Traveling Agent—R. K. COLCORD.

5v22cww-6m

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURED OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAIT'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells, and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Conne-
ctions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED, V. KINGWELL.

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 8v19-3y

PACIFIC
Rolling Mill Company.

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting.

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention.

The highest price paid for Scrap Iron 8v143m9p

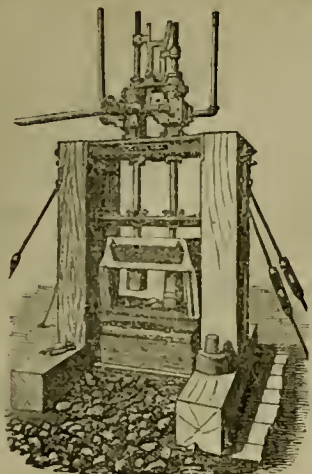
THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities.

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

**THE WILSON
Patent Steam Stamp Mill**



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enormous popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 325 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor Brand Bolt- ing Cloths; Smit Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired, rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.

2v22-lyms 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St 2v21-2f

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

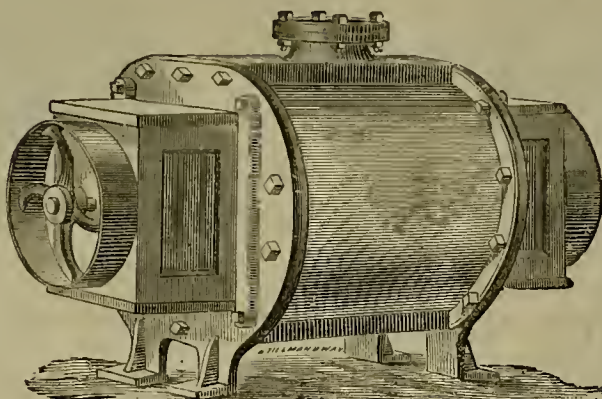
Duncan's Building, Room 1, California Street, 4v21-ly San Francisco.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864 July 24 1866 and Oct. 9 1866.

ADAPTED

FOR

Smelting.

Foundry.

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

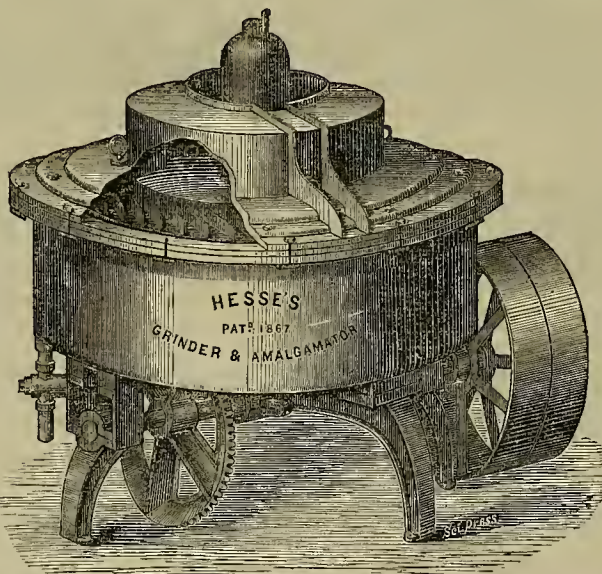
Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

v16-3m

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

fell-tf

LORD & PETERS,

304 Battery street, San Francisco, Cal.

Metallurgy and Ores.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods, of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates. **CHAS. WEST,**
No. 130, 3d Street, S. F.

NEVADA METALLURGICAL WORKS,
19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET.

One door west of Montgomery.

H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical

CHEMIST.

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

HENRY G. HANKS,

Assayer and Chemist,

AND DEALER IN

Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc.

P. O. Box, 1180. 649 Clay Street, San Francisco.

Baltimore Copper Company.

Highest Price paid for Copper, Ore, 15 pr. ct.

Regular, and Bars.

DANIEL MEYER, 210 Pine Street,

23v21-3m

SAN FRANCISCO.

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide. Prepared expressly for chlorinizing purposes, by A. T. Ladd, from ore taken from his celebrated Manganese Mine in Corral Hollow. Pronounced by Mr. Mopman of the Chlorinizing Works of Nevada City, and others, as the best they ever used. Crude ore sold in quantities at low rates. Apply to **BLUXOME & CASSEBOHM,** 20v21-3m No. 316 California street, San Francisco.

MILLER & HALEY'S MILLS,

BERRY STREET,

Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fromon street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers. 19v21-3m

MILLER & HALEY,

Calendar for 1871.

1871.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	1871.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Jan.	1	2	3	4	5	6	7	Jan.	16	17	18	19	20	21	22
Feb.	1	2	3	4	5	6	7	Feb.	23	24	25	26	27	28	29
Mar.	1	2	3	4	5	6	7	Mar.	30	31					
Apr.	1	2	3	4	5	6	7	Apr.							
May.	1	2	3	4	5	6	7	May.							
June.	1	2	3	4	5	6	7	June.							

[ADVERTISEMENT.]

SWAMP AND OVERFLOWED LANDS.—We give, on page 76, a review of Swamp Land Titles and Legislation, by a gentleman who for several years occupied a responsible position in the office of the State Surveyor General, (who is also *ex-officio* Register of the State Land office.) It covers the whole ground and apparently exhausts the subject, though want of space precludes giving the whole in this issue. So much has been written by those who are not familiar with the subject, that the public has anything but a correct view of the matter. All interested in such matters will do well to give this article, lengthy though it is, a careful perusal.—*Pacific Rural Press*, Feb. 4, 1871.

Copies of the above have been printed in pamphlet form and are for sale at this office. Price 25 cts. postage paid.

[ANNOUNCEMENT.]

OUR RECORD BOOK.

History of our Country Towns---No. 1.

SNELLING,

MERCED COUNTY, CAL.

[Written for the Press by Mrs. FRANCES H. McDOUGAL.] (Copyrighted.)

February 25th, 1870, we shall publish an interesting history of the above named town, with an illustration of the famous old Snelling Hotel. Extra copies will be for sale.

HALLIDIE'S Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

Constructed by David R. Smith, Civil and Mechanical Engineer, 519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. feb18-4f-16p

PACIFIC FILE WORKS,

No. 53 Beale Street, between Market and Mission, SAN FRANCISCO.



FILES of every description made and re-cut to order, JOB GRINDING of all kinds done at short notice. A complete assortment of New Files constantly on hand. Reamer and Mower Sections, Bars, etc., made to order. All work warranted. Orders from the country promptly attended to. No Chinese employed. feb18-3m

ROSS & HARVEY, Proprietors.

O. J. KING, B. KIMBALL, P. D. J. O. Z.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES, Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street, Between Jackson and Pacific, San Francisco. [16p

E. J. FRASER, M. D.,

Operative Surgeon and Homeopathic Physician,

No. 108 Stockton Street,.....San Francisco, Cal.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR, STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

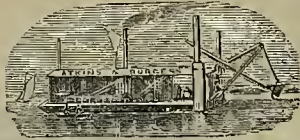
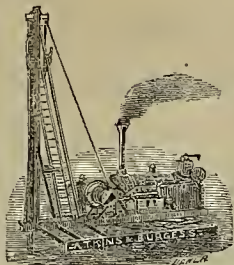
GENERAL MACHINERY,

CASTINGS

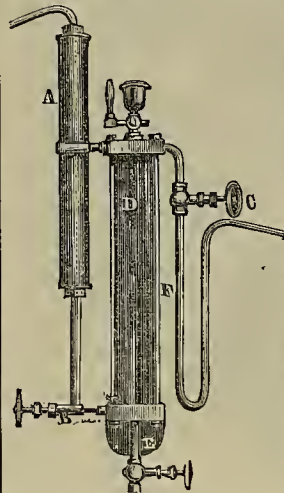
MADE TO ORDER.

Jobbing Promptly Attended to.

3v22-3m



GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

feb18-4f

Pacific Insurance Company.
No. 122 California St.,
San Francisco
Cash Assets \$1750,000.
Fire and Marine Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

PAPER-BOATS.

Have been rowed by the winners of NINETEEN races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada, besides much other information of interest to oarsmen. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address WATERS, BALCH & CO.,

23v24-3m

303 River Street, Troy, N. Y.

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansome St.

GEO. L. FAULKNER, Agent.

1v22-3mins

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME is ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURERS:—1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes

H. M. RAYNOB,

26 Bond Street, New York. Platinum Scrap and Ore purchased. 6v20-1y16p1

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

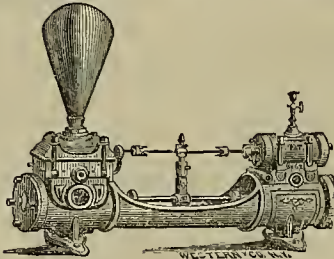
—WILL OPEN—

Tuesday, August 10, 1871.

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. O. KIMBLE. Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. feb18-16p 1f

A. L. FISH, Agent, KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p



FOR SALE BY THE HARDWARE TRADE. YALE LOCK M. F. G. CO., N. Y. Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches. FINE STORE DOOR, CLOSET, CHEST, DESK AND DRAWER LOCKS,

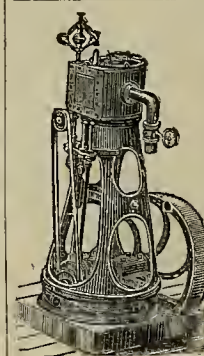
POST OFFICE LOCK-BOXES, CAST BRASS FRONTS, GLASS DOORS, PRISON LOCKS, UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.

OSCAR V. GERZABEK, 563 Market Street, Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of GENERAL HARDWARE, Table and Pocket Cutlery, Eng. and Am. Files Saws &c.

VARNISHES AND JAPANS. N. B. Send for circular and price list. Lower than the lowest. 24v21-3m



RIDER'S Automatic Cut-off Vertical Engines

Manufactured by the Albany St. Iron Works, NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

W. T. GARRATT & CO.



CITY

Brass and Bell Founder,



Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells, TAVERN AND HAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liqueur, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other joints, Spleter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1f W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING, Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market. MANUFACTURER OF SPAULDING'S Patent Tooth Circular Saws. They have proved to be the most durable and economical Saws in the World. Each Saw is Warranted in every respect Particular attention paid to construction of Portable & Stationary Saw Mills. MILLS FURNISHED AT SHORT NOTICE At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER RAWHIDE, Factory, South Park Mills, Drumm street, bet. Third and Fourth, San Francisco.

Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS.



KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and Cartridge Papers, &c., &c

Blank Books made to order from Crews' Exc. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied Agents for A. W. Fabers genuine Lead Pencils.

327, 329 & 331 Sanson St., San Francisco. 19v21comly

MAOAZINES.	P. An.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansome and
New York Ledger.....		Washington streets,
Blackwood.....		SUPPLIES ALL
Good Words.....	3 00	Eastern Periodicals,
Peterson's.....		BY THE
Arthur.....		Year, Month, or Number.
Lady's Friend.....	5 00	
Harper's Weekly.....		
Chimney Corner.....		
Literary Album.....	6 00	
London Society.....		
All the Year Round.....	15 00	
London Ill. News.....		

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

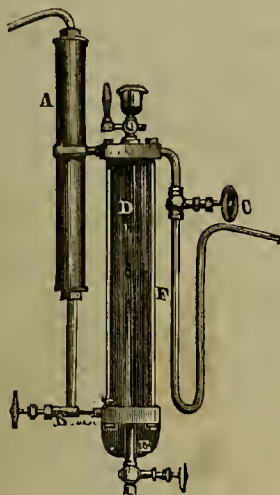
BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEB. 25, 1871.

VOLUME XXII
Number 8.

Lubricator for Steam Engines.

This valuable instrument consists of a vertical, cylindrical oil chamber, of glass or metal, provided with two openings at the top, through one of which the chamber is charged with oil, while through the other the oil is ejected by the fluid pressure brought to bear upon the lubricant. The oil chamber is also provided with two openings at the bottom, one for the discharge of water before filling, and the other for the introduction under the oil of water acted upon and impelled by the pressure within the steam boiler. All the openings into or out of the oil chamber are controlled by small screw valves, by means of which the injection of the lubricant is brought fully under control. The exit pipe is provided with an inverted syphon, to prevent steam from any chamber, into



which the oil is being fed, from entering the oil chamber. The induction pipe, through which the water is introduced, is provided with a vertical condensing pipe, for the purpose of providing, by condensation of steam therein, a full supply of pure water for use in expelling the lubricant from the oil chamber. The instrument is constructed on scientific principles and is beautifully and substantially made. It has been in use now more than a year and has given, we are told, the highest satisfaction to those engaged in steam engineering on this coast. It is manufactured by Mr. Wm. T. Garratt, corner of Mission and Fremont streets, S. F.

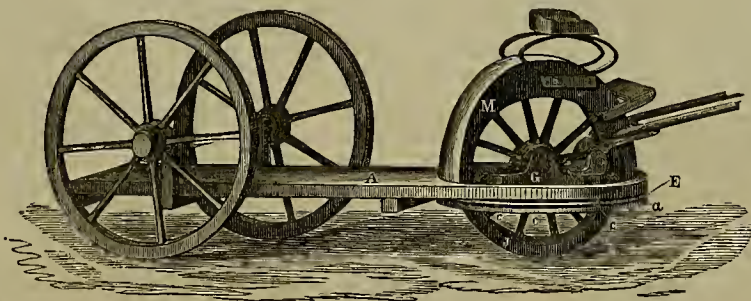
ORNITHOLOGICAL AND PISCATORIAL 'ACCOMMODATION SOCIETY OF CALIFORNIA.—This Society held a meeting Feb. 9th, 1871, in the rooms of the Academy of Sciences, No. 622 Clay Street. The following named gentlemen were elected officers for the ensuing year:—President, W. A. Newell, M. D.; Secretary, John Williamson Esq.; Treasurer, James Rolph Esq.

THE loss of life in the present European war is estimated to amount to half a million. Nearly four hundred thousand prisoners have been taken by the Germans.

Improvement in Vehicles.

Besides the blows which may be inflicted on horses by the drivers, there are other blows and shocks which the animals receive from the shafts of trucks when the front wheels, as usually placed, strike against obstructions on the road-bed. These blows, although their effect is somewhat deadened by the harness, are often much severer than a humane driver would willingly inflict.

To relieve the draft-animals from such blows and strains, and to gain certain other advantages, Messrs. Ross and Burk, of Truckee, have invented an improved construction of vehicles, applicable more particularly in the case of heavy trucks, which is here illustrated. The invention consists in so mounting the front part of the vehicle that it will ride upon one or two wheels, whose axle is supported in boxes



ROSS & BURK'S IMPROVED VEHICLE CONSTRUCTION.

on a horizontally-rotating rim; it also relates to the use of a device for relieving this horizontal rim from friction when turning from side to side.

The floor, A, of the truck, may be rounded or otherwise suitably formed at its front end, and has a circular opening made through it large enough to admit the rim or fifth-wheel, whose upper surface is flush with the top of the floor. At the lower edge of this rim is a flange, a, on which run the rollers, c, c, c, which support the front end of the truck. These rollers work in openings in an independent rim, E, which thus keeps them in position. They are conical or tapering in form, and consequently the rim or band which is attached to, and protects, the lower part of the floor, where the rollers come, is beveled. The upper part of the rim or fifth-wheel may be kept in place by buttons or lugs or by a flange, if desired.

Upon the rim, at each side, is secured a box, G, in which turn the journals of the axle of the front wheel, J; or, if found more desirable, the ends of the axle may be made fast and the wheel be allowed to turn upon it. The hub must be of sufficient length to insure steadiness and firmness in its attachment to the axle. The wheel, J, is made strong, with dodge-spokes and a broad, heavy tire, to prevent its sinking too deeply in soft spots or wearing too rapidly. The shafts are attached to the rim in a suitable manner. The seat is mounted

on springs and attached to a cover or housing, M, which protects the driver from the dirt thrown from the wheels. If it be found preferable in any case, instead of one wheel, J, two wheels may be employed, placed a short distance apart, so as to be within the rim.

By this arrangement, the object mentioned above would seem to be completely attained. Moreover, the truck or other vehicle can be easily turned in either direction; and the horse can be turned to one side, so as to be entirely out of the way, in cases where there is not sufficient room for him to stand in front of the track.

The inventors of this construction are Messrs. John D. Ross and Martin Kecer Burk, of Truckee, Cal., whose patent, obtained through the SCIENTIFIC PRESS Patent Agency, is dated December 20, 1870. Any letters concerning the invention may be addressed to the patentees.

Water Rights in the Mines.

Judge Sawyer, of the U. S. Circuit Court for California, Nevada and Oregon, has given an important decision in the case of the Cole Mining Company vs. the Virginia and Gold Hill Water Company, granting an injunction restraining the latter from using the water diverted from the Cole Company's tunnel. It appears that the Cole Company, in driving a mining tunnel, found and appropriated the water in question, several years ago. Recently the Water Company, under pretense of seeking ledges belonging to them, ran another tunnel below the one mentioned and thus diverted the water. The pretended ledges are not shown to exist, and the tunnel was run on the mining company's land. The Judge grants the injunction until the rights of the two parties are settled, the case coming up for judgment next month. He says in his decision:

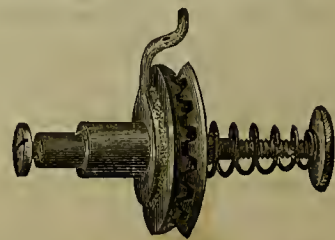
"It may be, that in a mining country situated as this is, a court would not restrain a party from merely running a tunnel through his neighbor's ledge, far below the surface, in order to reach his own, when it could be done without material damage, and there is no appropriation of his neighbor's property involved in the proceeding. To do so might be to throw unreasonable obstacles in the way of carrying on great and highly important enterprises. But, however that may be, I know

of no principle that would justify the owner of one ledge or mine in absolutely destroying the mine or property of another, in order to conveniently reach his own. This would be a palpable violation of the maxim cited.

Water is a highly important element in conducting mining enterprises in California and Nevada, and it is very generally known that it is scarce in Virginia, and the supply of this indispensable necessity for domestic and other uses to the people of Virginia City is almost all, if not wholly, derived from mining tunnels. A stream of water, therefore, thus found in a tunnel excavated for mining purposes is often as valuable to the possessor as the mine itself; and to take away such a supply of water from one who has acquired a right to it, by means of a tunnel excavated by another party for the purpose of prospecting or working his own mine, is as clearly a violation of the maxim as the destruction of his neighbor's mine in the same mode."

Tension Wheel for Sewing Machines.

For the purpose of keeping the thread tightened sufficiently in operating a sewing machine, Mr. John H. Mooney, of this city, has invented a very ingenious con-



trivance, patented under date of May, 31st 1870, which is illustrated below. The following shows how it is operated:

The thread, passing from the spool through the guide over the wheel, is placed one and a half times around the wheel, between the two corrugated disks, and from thence is carried to the eye of the needle. The required tension is obtained by turning the thumb nut on the end of the stud, which presses the spring against the wheel, making it turn more or less easily as may be necessary. The friction on the thread is produced by its bending itself against the half circles made by the teeth or corrugations in the two flanges of the wheel; the teeth on one side being distant from those opposite a greater space than the diameter of the thread, it cannot bind or fasten itself, but will draw freely and evenly from the wheel.

The device operates, we are told, exceedingly well, and is now in use on the Florence machine. It can be applied to any sewing machine. It may be obtained of Mr. Samuel Hill (under the Grand Hotel, S. F.) or of any of his agents for the Florence on this coast.

We could probably give no illustration of greater importance to our lady readers than one relating to the sewing machine, an article which is most highly prized by those who possess one, and which is greatly longed for by those who are not the present owners of the very useful mechanism. Therefore the present illustration will be particularly interesting to the gentler sex.

MECHANICAL PROGRESS.

SEYFERTH'S PROCESS FOR SYRUP PURIFICATION.—The London *Artizan* describes the method devised by Dr. Seyferth for the neutralization of the acids in sugar making. We quote:—"The process consists essentially in the introduction of sulphurous acid in very weak aqueous solution into the vacuum pans. By this it is possible to bring all particles of the sugar solution into contact with sulphurous acid, and to eliminate, by the joint action of heat and vacuum, any excess of the acid, which, however, not only saturates free alkalies and carbonate of lime, but also sets the organic acids, which might be present as alkaline salts, free from these combinations; the sulphurous acid taking hold of the bases they were combined with, while the greater part of these organic acids are volatilized along with the steam, and thus the sulphurous acid promotes the crystallization of the sugar, while its action as a decolorizer comes also advantageously into play. The acid is manufactured at the works by burning sulphur in ovens, and carrying the products of combustion, previously cooled, into a leaden vessel wherein the gas is met by a current of water so as to become absorbed. The solution thus obtained is put into casks, or other suitable vessels, and from these a tube, provided with taps, leads to the vacuum pans, into which the liquid is sucked simultaneously with the sugar solution. The party in attendance upon the hoiling in the vacuum pans, takes care to test from time to time by blue litmus paper, so as to insure the contents of the pan remaining alkaline; but if by a mishap the acid is in excess this is remedied by sucking in a fresh quantity of sugar solution, while a slight increase of the rapidity of evaporation (the turning out of more cold water to the condensers) will rapidly eliminate and volatilize any excess of sulphurous acid."

ALLOYS OF TIN AND IRON.—The following is from the *Technologist* for February: "According to Karsten, pig-iron with one per cent. of tin, yields a somewhat cold-short wrought iron with about 0.19 per cent. of tin. Such iron, it is stated, works well under the hammer, but at a white heat, white vapors escape. With more tin, the iron in welding gave much waste and produced cold-short iron, with a fine, white and dull grain. For specific purposes, however, especially where great hardness is required, iron with a small amount of tin, not exceeding 0.3 per cent., seems to be well adapted. Sterling, in England, hardens the tops of rails with tin, and according to a report of the English Commission for testing iron in regard to its adaptability for railroad purposes, the best Dundee bar-iron, if alloyed with 0.22 per cent. of tin, supported, without breaking, a weight of 23.39 tons to the square inch. Adolph Ott, of this city, fused wrought iron with 0.5 per cent. of tin, and arrived at results similar to those of Karsten. Whilst at a welding heat, it worked very well, the smith stating that it was some of the toughest iron he had ever worked. The grain was found to be fine and steel-like, with strong luster and bright color."

THE BRONZE GUNS FAILED.—*Engineering* says that the three bronze 9-pounders taken for testing as samples of the lot recently cast at Woolwich, "all failed after about 200 rounds had been fired from each of them, large holes and deep fissures being developed in the bores. Probably the metal—which is that of some of our old bronze guns—suffered in remelting, the tin, which has to be added at each remelting, not properly amalgamating with the body of the metal, but collecting in small pockets. These would form soft spots on which the action of firing would soon tell. Guns of this metal, when made sufficiently hard to withstand friction and erosion, are too brittle to resist the shock of the explosion of the charge. On the other hand, if the metal be of sufficient degree of toughness, so as not to break, it will be too soft to withstand the action of the powder when fired. When smooth bores and round shot were the fashion, the percentage of defective castings in bronze guns was very high, whilst with rifled ordnance that percentage has greatly increased. With new metal these results are bad, but when old guns are remelted, it is infinitely worse."

ELECTRIC SIGNALS FOR BRAKEMEN.—This plan has been introduced upon one of the trains between Boston and Worcester. The *Gazette* of the last named city describes the apparatus as "consisting of an electro-magnetic telegraph extending through the entire train, and connecting with the cab of the locomotive. There is a battery of six cups, and an alarm-bell in the cab and in each car. There are two wires passing between the cars, covered with tarred twine. One end of the cable is securely fastened to the car, while at the other end is a copper link, which is placed on a sort of a spring-hammer on the other car. This link, when in its proper position, keeps the connection open. It is so arranged that, should a part of the train become detached, the link is pulled off; the circuit is broken, and the bell in the locomotive and on each car is kept ringing until the circuit is again closed. Besides automatically indicating the breaking of a train, the apparatus is useful in signalling between the engineer and his brakemen. Instead of blowing the whistle to notify them to apply or let off the brakes, the engineer simply touches a little knob that rings the bell on each car almost instantly. By this method the brakeman on the rear car is notified as surely as though on the first car, which is not the case by the present arrangement, for it frequently happens that the sound of the whistle does not reach the end of a long train. If there is trouble in any car the conductor or brakeman touches a little knob, the signal is given, the engineer and the other brakemen are warned, and the train is stopped."

TAPIOCA PAPER FOR PHOTOGRAPHERS.—This paper, for copying photographs by artificial light, is thus prepared: Two hundred grammes of tapioca are soaked for 2 days in an equal weight of water; 10 liters of water are added, and afterward, for every liter of liquid, 10 grammes iodide of potassium, 30 grammes chloride of potassium, 1 gramme bromide of potassium, are dissolved, and the whole hoiled for ten minutes, allowed to stand for a day, and decanted and filtered through fine linen. The paper is immersed in it 12 to 20 sheets at a time—or can be floated upon it—for 15 to 20 minutes; it is then hung up to dry in a dark room. If it has assumed a dark color, that is of no consequence, as it disappears in the silver bath. This is to be prepared in the proportion of 1:15, and for every ounce of nitrate of silver, 50 to 60 grains of citric acid are to be added. The developer is made of 50 grains of pyrogallie acid and 80 grains citric acid in 30 ounces of water. The time of exposure varies from 10 seconds to 25 minutes, according to the picture to be copied and the actinic force of the light. —*Jour. of Applied Chem.*

STEEL WELDING.—We have spoken of the Rothwell flux. Following is evidence of its value from the correspondence of the *Iron Age*:—"At the shops of the New York and New Haven Railroad Company, welds were made of the worst specimens of steel which the ingenuity of the foreman could produce. A bar of American Bessemer, apparently one of a lot which has exhausted the mechanical ability of the shop to work, was welded in several ways and broken cold, showing a clear fracture across the weld. At the works of the Spring Company, the welds of spring heads are made with borax, which is both costly and uncertain. Welds were made of these with the Rothwell process, at one-tenth the cost, which were equal in every respect to those of borax, and superior in that there was no imperfect work—no failure out of seventy-five—while with the borax the failures are frequent. At a tool company's works, high and low grade cast steels were welded in every form, burned to a sponge, and perfectly restored."

EXTERNALLY ADJUSTABLE PACKING FOR PISTONS.—We see described a newly patented arrangement by which the packing may be tightened at will by simply turning a nut at the outer end of the piston rod. A conical head is by this means pressed down into the cup shaped leather packing with which the piston is provided, or is partially withdrawn, as the case requires. The same device is applicable to syringes and pumps.

THE DOLOMITE LIGHT.—"A new use has arisen for this mineral as a substitute for lime in the calcium light. Small prismatic pencils are cut out of it, and exposed to the oxyhydrogen flame by which they are rendered white hot and give out powerful photographic rays. The material can be used for hours without exhibiting anything more than a slight indentation on the side which was exposed to the flame."

SCIENTIFIC PROGRESS.

ALL VERTEBRATES FROM A COMMON PROGENITOR.—"With respect to development, we can clearly understand, on the principle of variations supervening at a rather late embryonic period, and being inherited at a corresponding period, how it is that the embryos of wonderfully different forms should still retain, more or less perfectly, the structure of their common progenitor. No other explanation has ever been given of the marvellous fact that the embryo of a man, dog, seal, bat, reptile, etc., can at first hardly be distinguished from each other. In order to understand the existence of rudimentary organs, we have only to suppose that a former progenitor possessed the parts in question in a perfect state, and that under changed habits of life they became greatly reduced, either from simple disuse, or through the natural selection of those individuals which were least encumbered with a superfluous part, aided by the other means previously indicated. Thus we can understand how it has come to pass that man, and all other vertebrate animals, have been constructed on the same general model, why they pass through the same early stages of development, and why they retain certain rudiments in common. Consequently we ought frankly to admit their community of descent; to take any other view, is to admit that our own structure, and that of all the animals around us, is a mere snare laid to entrap our judgment. This conclusion is greatly strengthened, if we look to the members of the whole animal series, and consider the evidence derived from their affinities or classification, their geographical distribution, and geological succession. It is only our natural prejudice, and that arrogance which made our forefathers declare that they were descended from demigods, which lead us to demur to this conclusion. But the time will before long come when it will be thought wonderful that naturalists, who were well acquainted with the comparative structure and development of man and other mammals, should have believed that each was the work of a separate act of creation."—*Darwin.*

THE OHIO GAS WELLS.—A paper in the *American Chemist*, by Dr. Newberry, says that at one point, near the mouth of the Kokosing, the augur, on reaching the depth of 600 feet, struck into vertical crevices and sunk several feet without resistance; and from two crevices a volume of carburetted hydrogen issued which was unparalleled in all the oil explorations made in the country; the wells gave out salt water intermittently, throwing it to a height of over 100 feet. The gas of one of wells, lighted at the end of a pipe two inches in the clear set in the well head, produced a jet of flame 20 feet long and as large as a hog's head. By fixing a stop-cock in the pipe the gas was made to accumulate until, measured by a steam-gauge, the pressure amounted to 180 pounds to the square inch. The gas appears to be pure and the volume sufficient to light a large city.

COMPOUNDS OF GOLD.—The *Journal of Applied Chemistry* for February contains an article by Prof. Charles A. Joy on "The Chemistry of Gold," from which we quote: "M. Pratt, of Bordeaux, has published the results of extended researches into the properties and compounds of gold. He states that chemically pure gold can be prepared in the form of sponge; that there exists a liquid chloride superior to the per-chloride, and that salts can be made from the sub-oxides and bin-oxide. He succeeded in making a fluoride of gold from which he prepared fluorine in the form of a yellowish gas similar to chlorine. The preparation of spongy gold is accomplished by saturating a solution containing ten per cent. of chloride of gold with pulverized carbonate of potash, and for each equivalent of gold salt, he adds an equivalent of a saturated solution of the same carbonate; he then treats the filtered liquid with five equivalents of pulverized oxalic acid, added in small quantities at a time, and boils the liquid for ten minutes. The gold is reduced to the state of an extremely fine powder, and the grains agglomerate and form a spongy mass without metallic luster, but convertible by the hammer into solid ingots. M. Pratt has also prepared the carbonate of gold."

CAUSE OF THE INSET CURRENT AT GIBRALTAR.—At a late meeting of the Royal Geographical Society, Dr. Carpenter read a paper upon this subject, in which, after detailing the various unsatisfactory theories which have been propounded in explanation of this current, he suggested the following,—which we find in *Nature* for Jan. 19th: "The water of the Mediterranean has a uniform but limited excess of weight over that of the Atlantic—so limited as to do away altogether with the idea that there is an accumulation of salt in the Mediterranean. The excess of salt was found to be greater in the lower than in the upper stratum of water, and thus the excess of evaporation was produced. If there be two columns of water of equal density—one that of the Atlantic, the other that of the Mediterranean—an excess of evaporation lowers the height of the Mediterranean column. If the Atlantic column were of fresh water, just enough would flow in from it to restore the evaporated water. But it is salt water which actually flows in from the Atlantic, and therefore it produces an increase of pressure, which presses the Mediterranean water outward till the equilibrium is restored. This being restored, there is once more a reduction of the Mediterranean level by evaporation, and so on; and, therefore, a circulation is always going on between the waters of the Mediterranean and Atlantic. The only difficulty in receiving this explanation is that the water of the outward-flowing current must run uphill; but other examples, he stated, are known. The fact that such a circulation exists, he said, is now indisputable, recent experiments having satisfactorily determined the evidence of a westerly current underlying the surface easterly current. These currents are, therefore, only a portion of the general oceanic circulation, which causes a perpetual surface motion of warm water from the equator to the pole, and a counter under-current of cold water from the pole to the equator."

WHAT THE ECLIPSE HAS TAUGHT.—J. Norman Lockyer considers the great teaching of the late eclipse to be the additional evidence of the compound nature of the corona; it being partly a true solar appendage, and partly due to our own atmosphere. He writes from Venice to *Nature*. We copy the conclusion of his article from that journal for Jan. 19th,—omitting the names of observers which he has given here and there in parenthesis:—"From what has preceded, then, we seem justified in suggesting as working hypotheses the following, which, however, more accurate information may alter, and which I offer as suggestions only, *bien entendu*. 1. The Solar Chromosphere extends some 5' or 6' from the sun, its last layers consisting of cool hydrogen, and possibly a new element with a green line in its spectrum; which line, if it be identical with the auroral line as stated by Gould, may possibly be present in the higher regions of our own atmosphere. 2. Outside this stratum the rays, &c., are for the most part due partly to our own atmosphere, partly to our eyes, for their shape varies; they are seen by some at rest, by others in motion, and their spectrum is the same as that of the dark moon. 3. The white light of the chromosphere above the prominences, as seen in an eclipse, is due to its strong reflection of solar light, as shown by the polariscope observations. 4. The rosy tinge of the corona proper, that is of the region more than 5' or 6' from the sun, is due to our atmosphere containing light which comes from the higher and lower strata of the chromosphere."

THE MOUNT WASHINGTON OBSERVATORY.—*Silliman's Journal* for February says:—"Prof. C. H. Hitchcock, at Hanover, has telegraphic connection with the summit, and occasionally joins the observers. Gen. Myer, head of the 'Bureau of Telegrams and Reports for the Benefit of Commerce,' recently established by Congress, ordered the laying of the telegraphic wire to the summit, so that a daily statement of the observations might be sent to Washington and to the rest of the country. The house occupied by the observers is the depot of the Mt. Washington railroad. The party has two barometers, thermometers, a hydrometer, Robinson's self-registering anemometer, and an anemoscope. Three daily telegraphic reports are sent out, two to the Bureau of Telegrams at Washington, and one to the New England Associated Press, Boston."

CORRESPONDENCE.

Notes of Travel in Mariposa County.

[Written for the Press.]

Hornitos and Vicinity.

Hornitos is the first one of the villages in this county arrived at on the tour from Stockton (via Snelling,) to the celebrated Yosemite Falls, of which I will say something in a future article. Although the subject has apparently been written thread-bare, the one-hundredth part has never been told. Hornitos does not at present contain over 150 inhabitants, and is quite dull; the lack of rain to supply the miner with water, suspends, in a manner, all placer diggings, although the mountain ranchers in the vicinity are apparently satisfied, and quartz mining is being pushed lively, within a distance of a few miles. Craigh & Co. and G. Gagliardo & Co. are its principal merchants; and, what cannot be said of ninety out of a hundred mountain towns, it has a hotel, kept by Dr. McDougall, Esq., where a first-class meal can be had.

Some two miles north-east from here is situated the Washington quartz mine, now successfully working, and satisfying its proprietors. The Jenny Lind quartz mine, situated next adjoining, (or near by), is at present silent, for want of the necessary capital to develop it. It is owned by J. Koehler, of Hornitos, and consists of a well-defined ledge, at a depth of 60 feet; the vein is four feet thick. The main vein contains a rose-colored quartz, highly sulphureted; the casings are of a rotten quartz, containing black sulphurets; its picked rock will average as well as the Washington, for which \$130,000 was refused last fall. Mr. K. claims 1,000 feet of this lode.

Bear Valley and the Mariposa Estate.

Bear valley, situated on the Mariposa estate, is some ten miles distant from Hornitos, and twelve miles from Mariposa. It contains about 500 quiet, industrious inhabitants; quite a different state of society from what existed here a few years ago, when drunkenness and murder, knife and revolver reigned supreme; for in former years this was the haunt of nearly all the escaped convicts and desperadoes in the country. Its present state is in great part due to the present manager of the estate, Mr. Thos. Goodsell, who has weeded out nearly all of the fighting and desperate characters who infested it. The children, too, are gathered together (by their own consent, now) on Sundays by Mrs. J. H. Brumagim to be instructed in morals. Previously the streets on Sunday were one grand carnival of fighting and carousing. The Mariposa blacksmith, Hon. J. W. Wilcox, still wields his hammer here with as much satisfaction as though he had never figured politically. Mr. W. also runs a small machine shop and foundry, and manages to satisfy his customers in each of the above lines of the mechanic arts. J. H. Brumagim & Co. are the present proprietors of the Mariposa estate; and Thos. Goodsell, Esq., its general superintendent and manager. This estate, of which little or nothing has been written commendatory of late, and which is apparently without friends in this State, is owned by eastern capitalists, is being successfully managed at present and satisfying its proprietors by the billion receipts from three mills now running. It is about 18 miles in length, extending from the Benton mill, on the Merced river, to some three miles beyond Mariposa town, in an north-easterly direction.

The Princeton mill is now under repairs, and the probability is that a new one will soon be erected. The mill at Mariposa is also shut down for reasons best known to the managers. The company have 600 men at present employed, a large majority of them working by contract. The drillers (single hand) get 32 cents per foot, 3 cents decrease on former prices paid. A number of important experiments with giant powder, Nos. 1 and 2, mixed with other chemical ingredients in several different forms, have been tried here, I was informed, successfully, but I can learn no particulars.

As far as my observation goes, I think this estate is managed more judiciously than it ever was before. Its affairs are conducted with closed mouths, and perfect secrecy as regards its present or future. I must say, however, that I never was more cordially treated in my entire tour of this

State than by the management and attaches here. J. Dolan Esq., Superintendent of the Linda mine on the grant, at "Pine tree," has been steadily engaged here for nearly eight years.

Coulterville and Vicinity.

Coulterville, 13 miles from Bear Valley (by trail), is quite dull at this season of the year. It depends almost entirely for its support upon the Yosemite travel in summer. The mines surrounding it that are successfully working, are situated at such a distance that each mine has its own village, of some size, to furnish all the wants of those employed. This place is situated about eighty miles from Stockton, via Knights Ferry and Crimea House, and about 90 miles via Modesto and Snelling. It contains about 300 inhabitants, and is one of the principal thoroughfares through which tourists pass for Yosemite, (there being three routes). A new wagon road is in course of construction, and, I am informed, will be completed this summer. When done, tourists can go in wheeled vehicles to within some three miles of the Falls, which will be within seven and a half or eight miles of the hotels in the valley.

The Virginia quartz mine, owned by J. M. Aiken, of Coulterville, is situated on the mother lode of the California mines, and is distant two and a half miles south-east of Coulterville. It is covered by U. S. patent, and is well known to be one of the important ledges of the State. It is now in the market for want of heavier capital than that possessed by its present proprietor. It is 2,500 feet in length and the ledge is from four and a half to forty feet thick. There is plenty of wood and free water in the immediate vicinity. The hanging wall is stratified and shows free gold; the boulders are, I am informed, rich all through, having been thoroughly tested by tunneling and shafting. Capt. J. M. Aiken is also the possessor of one of the finest cabinets (not the largest) in the State. It consists of 400 different specimens of all the metals known, from all parts of the world, together with 150 bottles containing samples of different metals, chlorides, etc.

The Ferguson quartz mine is situated on the main fork of the Merced river, about 28 miles, a little south of east, from Coulterville, and within eight miles of the foot of the Yosemite valley. It is owned by E. Ferguson & Co., who claim 3,750 feet of a ledge, and are running an 8-stamp mill upon the same. Water is the motive power, and a plenty of it is running free to drive a thousand stamps. This mine has been in successful operation for 11 years, without levying an assessment. It is now paying a monthly dividend of \$4,000, besides laying aside a small surplus for contingent expenses. They are now working 20 men. The vein is from 1 to 8 feet thick, averaging 2½ feet. The average pay of the rock is now about \$41 per ton, and, strange to say, it has never before appeared in print. Their tunnel is in 1,100 feet on a level with the mill, to which the rock is easily taken by car. At the back of the tunnel they have sunk a shaft down 100 feet; at this point it is 800 feet from the surface.

Hite's Cove and Vicinity.

Several promising quartz mines in this vicinity are worthy of mention; but, in the absence of statistics, I can only give location and proprietorship. The Pedrigosa mine is situated on Bear Creek, and is owned by C. Bogan & Co., of Mariposa. The Flevana mine, situated about four miles from the above, formerly owned by F. Trobaeo, is considered an excellent mine and has a well-defined vein in sight. Old Hyman mine, situated on Whitlock's Creek, now lying idle, is considered an excellent paying mine if properly worked. Its temporary failure was due to having erected their mill at an impracticable distance from the mine. The Excellent mine, owned by Mr. J. R. Hite, in Hite's Cove, supports a population of 100 men and is worked upon a safe and paying basis. Following down the river is the old Goodman or Eclipse mine, owned by Peter Wyants, of San Francisco. This is at present paying large dividends and, I am informed, will compare favorably with the first mines in the country. From Tuolumne County in my next. L. P. MC.

THE PACIFIC FLE WORKS, No. 53 Beale St., the pioneer establishment of the coast, has recently changed hands. It will be seen by reference to our advertising columns that Messrs. Ross & Harvey are now in charge. We have so frequently called the attention of foundrymen, blacksmiths and others to the economy of having their old files re-cut, that further allusion to the subject is perhaps unnecessary.

Banner District, San Diego Co., Cal.

[Written for the Press.]

ENS. PRESS.—I send you three specimens of ore from this district. The two marked "Madden," are from a depth of 25 feet from the surface, enclosed in hard metamorphic slate. The vein is about 16 inches wide, the strike is west by north and east by south; the dip is south, or nearly so. The other specimen I call iron ore, is from near Viccita; depth from surface, 5 feet. I shall probably be able, at some other time, to send you specimens from the different ledges here. [We are obliged for the kind promise. The specimens, here spoken of, have not yet arrived. They will be described when received.—En. Press.]

The lodes in this district continue to improve on going down, and things in general look better every day. All that is wanted is capital to work the mines and put up proper machinery. McMechan's mill is running day and night, as is McKean's wooden mill. The last crushing of Redman, at McMechan's, gave \$50 per ton. Morans Coral gave at McKean's an average of \$45 per ton. The Madden averaged, by arastra, \$130 for the last two months. Chaperal is sinking. Geo. McKean is taking out good rock. Antelope is doing well, taking out about \$450 per week with one arastra.

As I take a great interest in the Press, I would willingly correspond, if you think it would be of any service to you to hear the news from this district. [We should be happy to receive such communications.—Ed.] S. D. M.

Julian City, Feb. 5, 1871.

Bull Run District, Nevada.

[Written for the Press.]

EDS. PRESS.—The weather has been much milder and pleasanter here this winter than it was last year. The lowest point reached at any time by the thermometer was 6 degrees below zero; last year it fell to 16 below. The snow does not exceed four feet in depth on the mountains, and regular communication has been kept up with Mountain City.

A number of companies have kept steadily at work. The Johnson company are taking out ore which ranges from \$100 to \$3,000 per ton. The ledge is four feet wide and has on each side a casing almost as smooth as glass. It is between the limestone and the slate. The Pacific Central is also taking out high grade rock. The Sacramento Tunnel Company is pushing on as fast as possible, and expects to strike three ledges—the Sacramento, Highland Queen, and Ogden—by next spring. The Monument Tunnel is progressing rapidly, is in 185 feet, and is the largest in this district. The McShane and Owings tunnels are both being driven. About 60 men are employed in the different mines. It is believed that over 2,000 tons of ore will be shipped to the Auburn Mill, at Reno, for reduction, next summer.

The Blue Jacket mine is reported to have been bonded to an English company for \$25 per foot, with 2,000 down as forfeiture.

BULL RUN MINER.

Bull Run, Jan. 30, 1871.

WATER FOR NAPA.—We understand (says the Napa Register) that a company composed of gentlemen of means, residents of San Francisco, has been formed for the purpose of supplying our city with fresh water. The preliminary surveys are being made for the route to bring the waters of Milliken cañon and some other streams east of this place, into the city, and it may be to extend their supply pipes to Vallejo.

OYSTERS BY THE ACRE.—There are 3,000 acres of oyster beds in Chesapeake Bay, yielding annually 25,000,000 bushels of oysters. In Baltimore upwards of \$10,000,000 are employed in the business of canning oysters.

Engineering Projects.

At the meeting of the N. Y. Society of Pract. Engineering, on January 18th, papers were read on the "Flotation of Vessels by Buoyant Docks," by Col. John E. Gowen, the American engineer who raised the sunken vessels in the harbor of Sebastopol, after the Crimean War; on "Floating War Torpedoes," by Mr. M. L. Callender; and on "Improved Systems of City Tramway Transit," by Prof. J. A. Whitney.

Raising Sunken Vessels.

Col. Gowen described at length the means used in lifting submerged vessels at Sevastopol. This was done by docks or caissons, fitted with internal water chambers, which, when filled, sunk the caissons to the requisite degree. They were then connected with the sunken bulks by chains passing under the latter, the water was pumped out of the chambers were immediately over the submerged vessels, and the caissons, being thus rendered buoyant, lifted the vessels. The whole were then towed shoreward, until the vessels grounded, when the operation was repeated until the hulks were finally beached.

Acting upon the experience thus gained, Col. Gowen proposes to construct similar buoyant docks or caissons, but more boat-like in shape, for lifting vessels above their normal water line and transporting them across bars at the mouths of rivers, the entrances of harbors, etc. Four of these, two on each side, would be used, supporting the vessel upon an iron cradle or frame between them. The use of such means to convey heavily freighted vessels over the bar at the mouth of the Mississippi, by enabling grain to be transported from the Western States direct to France, would divert the French imports (amounting to \$100,000,000 annually) from the Russian ports on the Black Sea to the centers of trade on the Mississippi.

Constructing and Operating Torpedoes.

Mr. Callender described a method of constructing and operating floating torpedoes designed for use against iron-clads. The cigar-shaped body of the torpedo is guided by a rudder, which may be worked by cords from a boat following at a suitable distance. In its underside, pointing forward and downward at an angle of about 45°, is a cylindrical percussion bomb, whose front connects by a chain with the front of the body. When this body strikes the hull, the bomb is thrown forcibly forward and downward, is caused by the chain to move in the arc of a circle and thus to strike the keel under and below the armor, the concussion causing it to explode.

City Tramways.

President Whitney described the system of improved city tramways devised by S. D. Tillman, Chairman of the Polytechnic Association of the American Institute. It is proposed to lay down, flush with the surface of ordinary pavements, lines of iron blocks or plates, cast in such form as to secure the greatest strength, with the least weight, and to secure the greatest stability upon a sand or concrete foundation. The blocks of each track should be connected together in such a way as to mutually sustain each other in a longitudinal direction, and of such contour on the upper surface as to insure a smooth running-way lengthwise for wheels, and at the same time sufficient hold, especially in a transverse direction, for the shoes or hoofs of draft animals.

That such tramways would prove of very great advantage, was claimed as evident, when the rates of traction upon different road surfaces are taken into consideration. A tractive power of 100 pounds continuously exerted will, on a smooth iron surface, like that of a common railway track or of the proposed tramway, draw 27,600 pounds; whereas experiment has shown that, on other roadway surfaces, its result will be about as follows: On a common gravel road, 15 cwt.; McAdam, 27 cwt.; Granite pavement, 31.5 cwt.; broken stone laid on rough stone pavements, 48 cwt.; wood pavement, about 55 cwt.; and on the very best stone pavement, in the neighborhood of 67 cwt.

MINING SUMMARY.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

NEXT WEEK.—*Chronicle*, Feb. 11th: The machinery of the Glohe Mill has been running in order to get everything adjusted. The settlers will be put in position immediately, so we may expect the works will commence operations next week.

ANOTHER MILL.—*Miner*, Feb. 11th: We have it on authority that the Directors of the Schenectady Co., Tarsbush Mine, have before them three plans of reduction works, by as many competent mining engineers, and that after deciding which is best, they will put up works at once. The mine is turning out better than at any previous time; some four thousand dollar ore having been found recently and a vast body of pay rock in sight.

AMADOR COUNTY.

RED HILL MINE.—*Dispatch*, Feb. 18th: During a recent visit to Volcano we learned that a number of new quartz mines were being opened, which afford flattering prospects. Prominent among them is the Red Hill mine, owned by Epling & Kimball, three miles above Volcano. The rock taken out thus far, will average fifteen dollars per ton; and it increases in richness as they go down. The Co. will have their mill ready to commence operations in a few days.

CALAVERAS COUNTY.

BIG "CHUNK."—*Chronicle*, Feb. 18th: On Sunday we were shown a chunk of amalgam, weighing 449 ounces, the result of thirteen days' run at the Palomo. Several hundred dollars in pieces, reserved as specimens, had also been taken out, which would have swelled the total to \$8,000. At the depth of 400 feet the ledge shows wider and richer than at any point above. The shaft has been retimbered and everything got in shape to work to the best advantage.

EL DORADO COUNTY.

THE SEASON.—*Placerville Democrat*, Feb. 18th: The dry winter is severely felt here. As yet there has been nothing done in the way of mining to amount to anything. The aspect of the clouds for the last two weeks, has been closely watched with anxious faces.

MARIPOSA COUNTY.

ITEMS.—*Gazette*, Feb. 17th: The Washington mine, near Hornitos has become more valuable than ever. There is now opened a stope of 120 feet in length, in vein from 5 to 15 feet wide and averaging \$15 per ton for the whole body. The extraction and delivery of the rock at the mill is stated to cost only \$2½ per ton. . . . We have heard flattering accounts of the Ferguson mine, but have no particulars.

MENDOCINO COUNTY.

GOLD.—The *Democrat* has the following: "Mr. Traber, near Coats' Mill, Little Lake, has discovered a vein of gold bearing quartz. We understand some of the rock has been assayed and was found to yield \$7.70 to the ton.—This was surface rock.

NEVADA COUNTY.

THE WATER SUPPLY.—*Transcript*, Feb. 19th: A large amount of water from the reservoirs of the South Yuba Canal Co. is carried to Dutch Flat, and the supply is in consequence still short in this locality. Claims at Blue Tent, Cement Hill and other places in Nevada township are still unworked, though the miners are all ready. In other places in the county the supply is nearly up to the demand.

OSTOMAH HILL.—Gentry & Co. are putting in their flume, having got the tunnel, upon which they have been working for three years, through. They expect to get ready for washing early next month.

ALTA HILL.—*Grass Valley Union*, Feb. 17th: The Altoona miners are in the gravel. They are down 150 feet, and have made some good pannings. Alta Co., No. 3, have an engine at work pumping water and hoisting day and night. The shaft is down 125 feet, and has reached pipe clay which is always just above the gravel deposit. The hard part of the sinking has been accomplished since the cement, just under the soil, has been passed. The shaft is 11 x 4 feet in the clear, and is in three compartments, two for tubs and one for the pump. The Alta No. 3, we believe, will bottom on an old river channel of great richness. The workings of Alta No. 2 in the past and the explorations of the Hope Co. show this. At the depth of 250 feet the channel will be struck, and by the 20th of March the shaft will be down.

The location covers ground which it will require years to work through a shaft. The water is heavy, but the machinery handles it easily. The Alta No. 4 Co. have commenced a shaft and have gone into the cement for some distance. Work is not being prosecuted on these claims at present. The same with Alta No. 5. The Hope people are pounding away on cement, and making openings under ground.

STRUCK IT RICH.—Same of 18th: Jeffrey & Co., in the Altoona claim on Alta Hill, struck the gravel yesterday in the bottom of their shaft. The shaft is 8 x 4 feet, and from the gravel taken from it, Mr. J. washed out \$50 in gold.

HOWARD HILL.—A recent crushing of 21 tons of rock from the Howard Hill mine (formerly the Lucky), yielded, net, \$400, a little over \$19 to the ton. This rock was from fresh croppings.

PLACER COUNTY.

CRESUS.—*Stars and Stripes*, Feb. 16th: We understand that the Greek Co., on the Cresus ledge, have for some time been taking out very rich rock, and now have 100 tons in transportation to Ophir for crushing. Several companies are at work on this ledge, under lease contracts made with Tabb and C. H. Mitchell, who hold a patent from the United States. The leases are for short terms, at the end of which all improvements revert to the Messrs. Mitchell.

RATTLESNAKE BAR.—The miners still suffer for want of a sufficient supply of water. On the North Fork ditch there are places which were formerly walled up that do not stand, but slide away and will require to be flumed.

PLUMAS COUNTY.

EUREKA.—*Quincy National*, Feb. 11th: We learn that the prospects of the Co. for the coming summer's run are very satisfactory. They have 27 men taking out rock, and will commence crushing about the 1st of April. The vein is 25 feet wide, and the rock will pay \$25 to \$30 per ton.

SACRAMENTO COUNTY.

RHODES' DIGGINGS.—*Folsom Telegraph*, Feb. 11th: Kinkead Johnson and Harthan, of Folsom, and Dr. Light, of Sacramento, have taken up a mining claim for prospecting the stratum of rich pay dirt believed to lie between the cement and bed rock. The surface diggings were extremely rich at Rhodes', and in early times pounds of gold were often taken out in an hour.

SHASTA COUNTY.

UPPER SACRAMENTO.—*Courier*, Feb. 18th: Mr. Southern reports a heavy deposit of snow on the mountains about Dog Creek, Snake Creek, and Hazel Creek, and says miners all have plenty of water, and that the snow ensures a good supply next summer. He brought down 36 ounces of gold dust. He contends that the Upper Sacramento and its tributaries embrace the best mining section of the county.

SIERRA COUNTY.

WOLF CREEK MINE.—*Democrat*, Feb. 16th: The Co., are sinking a shaft, and have attained a depth of one hundred feet. The ledge improves in size and richness as they go down. At the present time they have a ledge at the bottom of the shaft six feet wide and of surpassing richness. The rock shown us was from the bottom of this shaft.

NUGGET.—A nugget of gold weighing six ounces was taken out of the Union claims at Port Wine last week.

NICE TAKE.—*Messenger*, Feb. 18th.—Andy Bergin, an owner in the old "Buckeye," found a nugget this week, which weighs 175 ounces; it contains some quartz, but is thought by competent judges to have 125 ounces of gold. If so it is worth over \$2,000. We understand a chunk was found in the same ground last year, which was worth about \$1,000.

ITEMS.—Kanaka mine will soon resume operations under different management. . . . Keystone has fourteen hands taking out rock. No water is there as yet. . . . The new mill at the Sierra Buttes of 40 stamps works well. . . . The snow storm has placed plenty of snow upon the ridges, which is enough to make the hearts of the miners glad, for a short season. . . . The Primrose, formerly owned by Lamping and others, has gone into the hands of Falk & Co., San Francisco. The sale was private, but the sum paid must have been large.

SISKIYOU COUNTY.

GOOD PAY.—*Yreka Union*, Feb. 15th:—William James and partner took out of their claim on Little Humboldt, week before last, by means of a rocker, \$175; the week previous they took \$134; how much they took out last week we have not learned.

TRINITY COUNTY.

DUTTON'S CREEK.—*Journal*, Feb. 18th:—The claim of Dixon, Paulsen & Co., is working with one sluice head of water. Their hydraulic is rigged with galvanized

iron pipe and twenty feet of canvas hose. The hose is protected by rings from four to ten inches in width made of the same material as the pipe. The edges of the rings are turned up so as to not cut the canvas and to prevent them from slipping over one another. This plan requires only one thickness of canvas to one hundred and twenty feet pressure.

ITEMS.—H. E. Willey has struck good pay near North Fork. Willey & Schutze proposes to extend the McWhorter ditch to the new diggings. . . . Edgecomb & Martin are sluicing off the old Court House site. . . . H. C. Wilt recently sold his mining claim on Park's Bar to a Company of Chines.

TUOLUMNE COUNTY.

KINCAID FLAT MINING CO.—*Sonora Democrat*, 18th:—This Co., have run their tunnel through solid rock eleven hundred and thirty feet. Great interest is felt by our miners in this enterprise. If the deep ground which this tunnel will tap, will pay for the investment made in opening it, several similar projects will be immediately put in operation.

The Knox & Boyle mine at Poverty Hill is promising well. Two levels were commenced a fortnight since from which ore is now being taken out. One run reducing fifty tons has been made, which yielded twenty dollars per ton. The rock crushed was taken without selection.

The last nine and a half days' run at the Confidence mine produced \$17,000.

Nevada.

ELY DISTRICT.

BULLION.—*Record*, Feb. 12th: We have to record this week: \$83,920.72. Every week's shipment seems to be an increase over that of the week previous.

CREOLE MINE.—The shaft is being timbered, a whim is building, and everything about the mine will soon be in shape.

PROCHE CITY.—A letter from which the *Gold Hill News* of Feb. 15th gives an extract, says:—"The whole country for five miles around this place is taken up. If a man strikes a good prospect, some one will bounce him with an old title. Three days' work holds good for one year. The ledges are very rich, but the trouble is the scarcity of water and mills. There are only three mills, and they are twelve miles from this place—one of thirty stamps, one of ten, and one of five. There are 3,000 people in and about the town, but only two companies working successfully."

EUREKA DISTRICT.

DIVIDEND.—*Sentinel*, Feb. 18th: The Eureka Cons. Co. will pay \$1 per share. This first dividend is equivalent to 10 per cent. per annum on the stock. The Jackson Co. will no doubt soon declare a dividend. Phoenix will perhaps declare no dividend until their furnaces are running.

RICH.—The bullion of Ogden, Dunne & Co., for the week ending February 17th, averaged \$1,063 per ton.

MINERAL HILL.—Huher & Co.'s mill has been laid up for some time for repairs. It will start again 1st of March. A large quantity of ore has been shipped from the Big Sandy mine to Austin, the owners not being able to get it crushed here. It is estimated that there is now on the dumps and at the mill over 3,000 tons of ore. Before that can be worked with the present mill facilities more than four times as much more can be taken out. This camp would afford constant employment to one or two more mills. Work is prosecuted with vigor in the mines. At the bottom of the shaft in the Giant, they have a ledge over 23 feet wide, all good pay ore.

HUMBOLDT.

BUENA VISTA.—*Silver State*, Feb. 18th: Three mills are in full blast. The Stewart and Arizona are working ore from the Arizona mine. The Pioneer is working ore from the North Star. The Arizona Association are working 28 men, and extracting on an average 30 tons per day of mixed ore for milling and shipping. In the North Star there are but few men to work as the ore cannot be hauled, owing to snow drifts. On the Arizona range, the Potosi and Inskip mines are producing fine milling ore. There are other mines prospecting with a show of success.

CENTRAL DISTRICT.—From this district, 14 miles north of St. Mary's, on Humboldt River, we have received specimens of ore from Locomotive ledge, evidently rich in silver. Assays yield \$1,000 to \$1,500 per ton. The ledge is six feet wide. The owners, Clark & Brother, are taking out a large quantity for shipment.

STAR DISTRICT.—The Sheba mine continues to improve as progress is made in sinking on the ledge, which is now four feet wide. Average mineral, with some shipping ore. The De Sofo has at present a large body of mineral, considerable of

which is shipping ore.

In Bloody Cañon district there are two mines worked vigorously, and shipping a fair amount of ore.

BULLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last was 730 pounds, valued at \$9,123.

REESE RIVER.

EL DORADO SOUTH.—*Reveille*, Feb. 14th: A lot of 134 tons of ore from this mine has just been worked in the Manhattan mill in this city. The pulp assay was \$220.60. We learn that hereafter the ore will be worked at Belmont, where Mr. Canfield has built a first-class mill, now in operation. Another mill, we are told, is projected. The Cornish pump drained the mine in three bours. Messrs Leon & Co. have commenced the sinking of the incline, which will be carried to a depth of 500 feet.

WASHOE.

HALE AND NORCROSS.—*Enterprise*, Feb. 19th: The daily product is 225 tons, principally from the eighth level. They are opening a new stope 90 feet south of the shaft. The ore is of very fine quality. Breaking of main shaft at the upper works yesterday will cause three or four days' delay.

SAVAGE.—This mine is producing 130 tons per day, from all the levels of both the old and new mines. The north drift on ninth level has been run 300 feet towards the Gould & Curry line. Cross-cuts run from this to the west have reached the wall without finding ore. Cross-cuts are now being run to the east.

SIERRA NEVADA.—The mine is yielding as usual, and the mill is running to its full capacity. The Sacramento and Meredith is also on Sierra Nevada ore. There is a marked improvement in the ore from the Sacramento and Meredith, and the mill will shortly be started on ore from that mine.

OPHIR.—Work in the "up-rise" is progressing favorably.

DANEY.—The drift is 74 feet from the main shaft. The rock is much more favorable. The drift appears to be draining the old works, and the pumps are constantly worked to their full capacity.

VIRGINIA CONSOLIDATED.—The north-west drift from the main west drift in the direction of the Central mine is progressing. The water continues to increase.

OVERMAN.—The suit between the Overman and American is now being heard. It will occupy the greater part of this week. About the usual amount is being taken from the mine.

SUCCOR.—The mine is yielding well, and the mill is in constant operation, paying all expenses. They have an abundance of ore.

CROWN POINT.—The ore body in the raise from the 1,100-foot level looks well. The drift on the 1,000-foot level to connect with the raise has yet to be driven forty feet.

YELLOW JACKET.—This is yielding 135 tons per day, assaying \$60. The most of this is from the 800, 900 and 1,000-foot levels. A considerable amount of prospecting is being done.

SUTRO TUNNEL.—The Tunnel was in 1,828 feet yesterday. The ground had been changable for the past two weeks, but is working well at present. Some water is coming in.

HOPE.—This has become bankrupt. The mine was about \$80,000 in debt. Many miners have been thrown out of employment and many are out for back wages.

BUCKEYE.—About the usual ore is being taken from this mine, which is crushed at their mill on the river.

GOULD AND CURRY.—Yielding as usual from the upper levels. A good deal of prospecting is being done and spots of good ore are occasionally found.

CHOLLAR-POTOSI.—This mine yields the usual daily supply from the Belvidere section, and all the ore breasts are looking well.

THE YIELD.—The County Assessor's books show a mine yield, for the last quarter of 1870, of about \$2,500,000. The average rock was about \$27 per ton. The best average on the largest quantity was given by the Chollar-Potosi, which mine yielded the greatest amount of ore, and \$1,034,911 worth of bullion—a yield never equaled by any one mine on the Comstock ledge.

WHITE PINE.

REVIEW.—*News*, Feb. 11th: The discharge of nearly 100 men from the Ward Beecher, North Aurora, Earl and Eberhardt mines, is to be looked upon as evidence of prosperity. The reason is, the piles upon piles of ore upon the dumps and the immense quantities ready for hoisting. Every drift, chamber and level is choked with ore. The tramway

is the one thing needful and the prospect for its early completion is good. Material is constantly arriving. The splendid 60-stamp mill is completed. Nearly all of our prominent mines on the Hill, with the above exceptions, are in full blast; work is prosecuted with energy, and the season bids fair to be unusually prosperous. The base metal mines, although backward, for the reason that comparatively no facilities exist for disposing of the ores, will many of them commence active operations soon.

Same of 18th says the Monte Cristo will build a new mill of 20 stamps. Several mines are named, commencing with the Trench and Dominion on the north and ending with the Mike Grey on the south,—8,000 feet in all—either one of which can keep a 20-stamp mill running on \$100-ore. The Base Metal mines on the west side of White Pine mountain will start work as soon as there is a market for their ores; and a dozen mines on this side only wait the same thing. The tramway has been delayed by the bad weather; but it will now be completed in six weeks. Work will then be resumed with a heavy force on the Ward Beecher, Earl, Eberhardt and North Anzora.

ASSASSIN'S REPORT.—The figures show the value of ore worked during 1st quarter of 1870 to be \$310,003; 2d quarter, \$386,119; 3d quarter, \$41,953; 4th quarter, \$397,134. Total for the year, with estimate of ore worked and not reported, and amount base ore sold, \$2,278,656.

Arizona.

BRADSHAW.—Prescott *Miner*, Feb. 11th: We have been in the Territory since 1863; but we have never seen such a mining excitement as that over Bradshaw district silver mines. This town is almost emptied at present by the rush thither. The mines are just over the Sierra Prieta range, 35 or 40 miles south from Prescott, in a well-watered, heavily timbered region. Should they pan out half as well as is expected, a town will spring up there. A site has already been selected. The ore is the richest we have ever seen. Old Nevada miners are excited over it. The "Tiger" ledge crops out 20 feet above the surface, is 4 to 8 feet thick, and has been traced for nearly 3 miles.

WALKER DISTRICT.—Shelton has out ready for crushing, several tons of decomposed Vernou ore, and recently got as high as one hundred dollars to the pan. The tunnel is in 150 feet, on the ledge. Paystreak two feet thick. The Pointer and Grant lodes were being worked, and the ore will yield \$100 per ton. Placer miners making good wages with rockers.

HASSAYAMPA.—Work is prosecuted upon the Davis lode, and the placer miners are taking out gold by the ounce.

WALNUT GROVE.—Henry & Co. will commence crushing soon.

WICKENBURG.—A private letter states that the Vulture Co. were getting plenty of rich ore; that Geo. H. Wilson and others were at work on their extension claims, and intend to give the ten-stamp mill all the crushing it can do. Placer diggings had been discovered above Wickenburg, and Mexicans were rushing to them. As high as three dollars had been taken from one pan of gravel.

BIG BUG.—We learned on Thursday that a large body of very rich ore had been struck in the Eugenie mine. The mill was working. Owners and miners happy.

British Columbia

A Victoria telegram of Feb. 12th, says: The Legislature of British Columbia has passed a bill allowing the Lanc and Kurtz Cariboo Mining Company to import all mining machinery (of California manufacture) free of duties and road tolls.

Idaho.

ITEMS.—*Avalanche*, Feb. 11th: The Chariot mine is yielding 100 tons of ore per day. They are down 50 feet on the seventh level, making the depth of the shaft 550 feet. It is intended to sink 40 or 50 feet more and then stoppe out the seventh level. The January account foots up \$106,482 21, and \$44,500 worth of Chariot hulkion was shipped to San Francisco this week.... The Peck & Porter is now in splendid shape. A substantial engine house, ore house and blacksmith shop have been built. The shaft is 240 feet deep. At the bottom of the 70-foot level there is a tunnel 80 feet, running north, and at the bottom of the 160-foot, a tunnel 140 feet. The average width of the quartz throughout is two feet.... The Mahogany is still yielding rich ore, which is worked in the Webfoot mill. Since Peaby took charge he has made it pay the expenses of working, besides liquidating old indebtedness.... Boh Morrison is prospecting a ledge east of the Peck & Porter. He has a tunnel in

30 feet, showing a vein two feet in width. Ben. Cook has commenced work on a south extension of the Corduroy.

LOON CREEK.—Oro Grande Cor. of *Democrat*, Feb. 11th: The winter has been mild. Several parties have been engaged in mining constantly thus far. Mr. Wm. Boyd averaged \$5 per day with a rocker. Tunnels are being run both up and down the creek, and a party of miners have found good prospects on the head of Yankee Forks, 18 miles above Oro Grande. Reports of good diggings on Salmon river, below Robertson's bar, are received.

Mexico.

The Acapulco correspondent of the *Bulletin* writes, Feb. 8th: "The news from the interior is limited. The few papers which have come to hand extol the richness of the newly discovered placers in Chihuahua, the mines of Pachuca; but all this wealth only exists for a few lucky individuals."

Montana.

CABLE.—*New North West*, Feb. 10th: Mr. Cameron was in town on Wednesday with 640 ounces of gold bullion—value about \$11,000—the result of two weeks' run on Cable ore.

GREAT DITCH PROJECT.—The *Independent* of Feb. 11th, says that a canal 25 feet wide and 5 deep, has been surveyed from the Jefferson River, at a point near Silver Star, to Helena, 160 miles, for mining and irrigating purposes. It will open up an immense mining region and make thousands of acres fertile.

The Silver Star mill is running on Green-Campbell ore, with good results. Nathan Merryman's smelting works at Beavertown, are working ten tons of silver ore per day. The ore pays \$108 per ton, four-fifths of this clear profit.

NELSON HILL.—Cor. of same: This is four miles below Blackfoot. It was discovered in 1866. The mining was done by carting the dirt to water for washing, the miners making \$5 to \$20 per day to the hand. In 1869, Ashley and Rierson dug a small ditch from the Ohio Ditch, four miles, and diggings were found to pay \$10 to \$20 per day. Last summer Green and Pounds, of the Ohio Ditch, purchased the small ditch of Ashley & Co., and enlarged it to the capacity of 350 inches. Mr. Rierson has also a ditch completed from Ophir gulch to a line of rich bars southeast of Nelson Hill. Kimley & Martell have a ditch out of Ophir Gulch, with a capacity of 150 inches, and have good paying ground. Butler, Welley & Co. have been digging a ditch from Snow Shoe gulch to the low bars on the east side of Ophir gulch. It will have a capacity of 400 inches. The company contemplate a hed rock flume four feet wide and two feet deep, running up Ophir gulch. About two miles of the gulch and bars on either side can be worked through it. Two miles above, is the bed-rock flume of Smith & Co. This is three feet wide and two feet deep, and is now in good pay; the Co. have nearly 4,000 feet of ground yet to work. There will be employment for a large number of men here in the spring.

QUARTZ CREEK.—Cor. of *Missoula Pioneer*, Feb. 9th: On Spring Bar, drain-ditches are being run on several claims, and the boys are sanguine of reaching bedrock and big pay in about a month. The owners of upper discovery claim cleaned up last week \$47 from two sets of timbers in the gravel.

FOREST CITY.—Cor. of same: On Monday the water standing in claim No. 63 since the freshet, was tapped by a drain from 62. The water in 63 and 64 is now falling steadily. Work will probably be resumed next week.

BROWN'S GULCH.—Mr. Enselman, Supt. of the mill, is working over last years tailings and getting \$110 per ton. Mr. John How has a new mill, nearly ready to run, on the Pacific lode.

THE SNOW.—*Helena Gazette*, Feb. 13th: "In our opinion the present snow, with what we may expect yet, settles beyond dispute that we will have one of the most prosperous mining seasons in 1871 that the Territory has ever experienced."

Oregon.

Telegram, Portland, Feb. 18th:—Good gold diggings reported discovered in Tillamook County. Active operations will be commenced as soon as the spring opens.

BAKER CITY.—Cor. of *Dalles Mountain-er*, Feb. 3rd:—There is snow enough in the mountains to ensure water until the first of August for mining purposes.... Work on the Burnt River Ditch has been prosecuted with great energy since it passed into the hands of the Chicago company.

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Feb. 23.

The mining share market has been subjected to very considerable fluctuations during the past week, the most prominent of which was the sudden rise, last Friday, of Gould & Curry from \$40 to \$60 and its subsequent decline. The fluctuations in several other descriptions were due in part to dividends paid or delinquent assessments added. Yesterday, the anniversary of Washington's birth-day, there was no session of the board.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Feb. 16. Highest.	Lowest.	Feb. 23. Adv.	Dec.
Alpha.....	15	12	16
Belcher.....	15	12	16
Chollar-Potosi.....	11	72	74
Crown Point.....	35	41	36
Eureka Cons.....	12	10	11
Golden Chariot.....	78	72	72
Gould and Curry.....	40	40	43
Hale and Norcross.....	97	89	97
Ida Elmore.....	10	9	9
Imperial.....	5	4	5
Kentuck.....	24	37	24
Meadow Valley.....	25	22	24
Ophir.....	6	5	6
Orig. Hid. Treas.....	3	3	3
Overman.....	7	5	5
Savage.....	39	39	4
Sierra Nevada.....	12	13	14
Yellow Jacket.....	41	43	43

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

BID, ASKED.	BID, ASKED.
Alpha Cons.....	31 3/4 32 1/4
Amador.....	16 1/2 16 1/2
Belcher.....	73 3/4 74
Chollar-Potosi.....	43 3/4 43 3/4
Crown Point.....	5 6 5 6
Dancy.....	5 6 5 6
Empire Mill.....	43 3/4 43 3/4
Eureka.....	5 6 5 6
Golden Chariot.....	43 3/4 43 3/4
Gould & Curry.....	43 3/4 43 3/4
Hale-Norcross.....	96 97
Ida Elmore.....	5 6 5 6
Imperial.....	5 6 5 6
Kentuck.....	39 39 3/4
Meadow Valley.....	5 6 5 6
Ophir.....	5 6 5 6
Orig. Hid. Treas.....	5 6 5 6
Overman.....	40 41
Savage.....	13 14
Sierra Nevada.....	13 14
Yellow Jacket.....	43 43 3/4

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT, OF SALE.
Amador, G. H., Feb. 15, \$1.....	Mar. 22—April 10
Cherokee Flat Blue Gravel, Feb. 4, \$5.....	Mar. 10—Mar. 28
Confidence, G. H., Feb. 6, \$3.....	Mar. 13—Mar. 21
Continental, W. P., Dec. 31, \$1.....	Feb. 6—Feb. 22
Dancy, Nevada, Jan. 10, \$1.50.....	Feb. 14—Mar. 4
Deep Spring, Inyo Co., Jan. 14, \$1.....	Feb. 25—Mar. 4
Eagle Quicksilver, S. Bar, Co., Feb. 6, \$20.....	Apr. 10—Apr. 18
El Refugio, Santa Cruz Co., Jan. 16, \$50.....	Mar. 21—Mar. 14
Imperial, Calif., Nov. 15, \$1.....	Mar. 7—Mar. 14
Kentuck, G. H., Jan. 17, \$10.....	Feb. 20—Mar. 10
Kennie A. Con., Dec. 31, 10c.....	Feb. 5—Feb. 27
Little Flat, Tul. Co., Jan. 12, \$2.50.....	Feb. 16—Mar. 4
Mammoth, W. P., Jan. 31, 10c.....	Mar. 10—Mar. 31
Marble Falls, Nye Co., Nev., Feb. 6, 25c.....	Mar. 9—Mar. 27
Maxwell, Nevada, Co., Dec. 21, 25c.....	Feb. 7—Mar. 7
Mountain City, Nev., Feb. 15, \$2.....	Mar. 27—April 17
Nevada, Nevada, Jan. 19, 25c.....	Feb. 20—Mar. 13
Noonday, Nevada, Jan. 19, 25c.....	Feb. 23—Mar. 17
North America Con. M. Co., Feb. 15, 5c.....	Mar. 29—Apr. 27
Orig. Hid. Treas., W. P., Jan. 31, \$1.....	Mar. 5—Feb. 31
Ophir, Placer Co., Dec. 13, 40c.....	Feb. 5—Feb. 27
Ophir, Virginia City, Jan. 11, \$2.....	Feb. 14—Mar. 7
Placer, Placer Co., Jan. 4, \$5.50.....	Feb. 15—Mar. 11
Rogers, Storey Co., Nev., Feb. 13, \$1.25.....	Mar. 20—April 17
St. Belcher, G. H., Jan. 14, \$2.....	Feb. 16—Mar. 6
St. Patrick, Placer Co., Dec. 27, \$1.....	Feb. 1—Feb. 20
Taylor, El Dorado Co., Jan. 31, 50c.....	Mar. 5—Mar. 27

MEETINGS TO BE HELD.

Alameda Coal.....	Annual Meeting, Mar. 1
Dancy.....	Annual Meeting, Mar. 5
Globe.....	Special Meeting March 15
Golden Chariot.....	Annual Meeting, Mar. 5
Hale and Norcross.....	Annual Meeting, Mar. 6
Silver Sprout.....	Special Meeting March 20
Virginia.....	Annual Meeting, Mar. 14

LATEST DIVIDENDS—(Within Three Months).

Black Diamond, \$ per ct.....	Payable Feb. 5
Chollar-Potosi, \$5.....	Payable Feb. 15
Chollar-Potosi, \$5.....	Payable Feb. 15
Eureka Cons, \$1.....	Payable Feb. 20
Golden Chariot, div., \$6.....	Payable Feb. 10
Hale and Norcross, div., \$5.....	Payable Feb. 10
Meadow Valley.....	Payable Feb. 9
North Star, \$3.....	Payable Jan. 10
Sierra Nevada, div., \$1.....	Payable Jan. 16
Yellow Jacket.....	Payable Feb. 10

San Francisco Metal Market.

PRICES FOR METALS

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FEBRUARY, Feb. 24, 1871.	
IRON.—Duty: Pig, \$7 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/4c per lb.; Sheet, polished, 3c per lb.; common, 1 1/2c per lb.; Plate, 1 1/2c per lb.; Pipe, 1 1/2c per lb.; Galvanized, 2 1/2c per lb.	
SCOTCH AND ENG. PIG IRON, \$34 per ton.....	@ \$35 50
White Pig, \$30 per ton.....	@ 32 00
Refined Bar, good assortment, \$30.....	@ 28 00
Refined Bar, good assortment, \$30.....	@ 28 00
Boiler, No. 1 to 4.....	@ 04 1/2
Plate, No. 5 to 9.....	@ 04 1/2
Sheet, No. 10 to 13.....	@ 04 1/2
Sheet, No. 14 to 20.....	@ 05 1/2
Sheet, No. 24 to 27.....	@ 05 1/2
CORRUG.—Duty: Sheathing, 3 1/2c per lb.; Pig and Bar, 2 1/2c per lb.	
Sheathing, \$10.....	@ 26
Sheathing, Yellow.....	@ 20
Sheathing, Old Yellow.....	@ 11
Composition Nails.....	@ 22
Composition Bolts.....	@ 22
TR. PLATES.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, 1 1/2c per box.....	@ 12 00
Plates, 1 C Charcoal.....	@ 10 00
Roofing Plates.....	@ 10 00
Banca Tin, Slabs, \$10.....	@ 42
STEEL.—English Cast Steel, \$10.....	@ 16
QUICKSILVER, \$10.....	@ 90
LEAD.—Pig, \$10.....	@ 7
Sheet, good assortment, \$10.....	@ 9
Pipe.....	@ 11
Bar.....	@ 9
ZINC.—Sheets, \$10.....	@ 11
BORAX.....	@ 25

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Feb. 11, 1871.

Pig, Scotch, No. 1 (cash), per ton.....	\$30 00 @ \$34 00
Pig, American, No. 1 (cash).....	30 00 @ —
Pig, American, No. 2.....	26 00 @ 28 00
Swedish, ordinary sizes.....	110 00 @ 120 00
Common.....	72 50 @ 77 50
Refined.....	75 00 @ 80 00
Rods.....	82 00 @ 117 00
Hoop.....	95 00 @ —
Scroll.....	100 00 @ 140 00
Nail-rods, per lb.....	97 50 @ 130 00
Spring.....	7 00 @ —
Tire.....	7 1/4 @ 8

STEEL.

Bars, best cast, warranted, per lb.....	18 @ — 19 1/2
Sheet, best cast.....	18 @ —
Sheet, second quality.....	15 1/2 @ —
Sheet, third quality.....	15 @ —
Saw-plates, circular.....	23 @ —
Double-shear, warranted.....	18 @ —
Single-shear.....	18 @ —
Montague & Co. (cast bars).....	15 1/2 @ —
Machinery, round.....	12 @ —
German, best.....	11 @ —
German, goat.....	10 @ —
German, eagle.....	9 @ —
Blister, warranted.....	14 1/2 @ —
Blister, common.....	14 @ —
Jessop & Sons', common.....	17 @ —
Double-refined.....	26 1/2 @ —
Stone-as-shapes.....	26 1/2 @ —

SUNDRIES.

American Lead, per 100 lbs.....	7 50 @ 8 00
German.....	7 50 @ 8 00
Bar.....	8 00 @ 9 00
Pipe and Sheet.....	8 50 @ 9 00
Musselman and Amer. Zinc, per lb.....	9 @ — 9 1/2
Antimony.....	16 @ — 17
Spelter.....	7 @ — 7 1/2
Copper, old.....	17 @ —

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, February 24, 1871.	
Sugar, crushed, \$10.....	14 1/2 @ 15
Do, picked, \$10.....	14 1/2 @ 15
Coffee, Costa Rica, \$10.....	9 @ 12
Do, Rio.....	19 1/2 @ —
Tea, Japan, \$10.....	55 @ 100
Do, Oolong, \$10.....	60 @ 100
Hawaiian Rice, \$10.....	60 @ 100
China Rice, \$10.....	6 1/2 @ 7 1/2
Coal Oil, \$10 gallon.....	50 @ 60
Do, kerosene, \$10.....	50 @ 60
Overland Butter, \$10.....	30 @ 35
Ranch Butter, \$10.....	40 @ 45
Ischnus Butter, \$10.....	25 @ 35
California Butter, \$10.....	40 @ 45
Eggs, dozen.....	20 @ 22 1/2
Ham, \$10.....	14 @ 15
Bacon, \$10.....	14 @ 15
Shoulders, \$10.....	9 @ 10

Retail Prices.

Butter, California, fresh, \$10.....	40 @ 50
Do, picked, \$10.....	40 @ 50
Cheese, \$10.....	20 @ 25
Honey, \$10.....	25 @ 30
Eggs, dozen.....	18 @ 20
Lard, \$10.....	13 @ 20
Hams and Bacon, \$10.....	22 @ 25
Unbranded, \$10 gallon.....	75 @ 100
Potatoes, \$10.....	2 @ 2
Potatoes, Sweet, \$10.....	2 @ 2
Tomatoes, \$10.....	2 @ 3
Onions, \$10.....	2 @ 3
Apples, No. 1, \$10.....	5 @ 6
Pears, Table, \$10.....	5 @ 6
Plums, dried, \$10.....	10 @ 12
Peaches, dried, \$10.....	10 @ 12
Oranges, \$10 dozen.....	50 @ 75
Lemons, \$10 dozen.....	50 @ 75
Chickens, apiece.....	75 @ 100
Turkeys, \$10.....	10 @ 25
Indo, \$10.....	10 @ 25
Soap, Castile, \$10.....	18 @ 20

PRODUCE, ETC.	
Flour, Extra, \$10 bbl.....	7 00 @ 8 25
Do, Superfine.....	5 00 @ 6 25
Wheat Meal, \$100 lbs.....	2 25 @ 2 50
Corn Meal, \$100 lbs.....	2 25 @ 2 50
Barley, \$100 lbs.....	1 35 @ 1 50
Beans, \$100 lbs.....	1 87 1/2 @ 2 40
Peas, \$100 lbs.....	1 00 @ 1 75
Hay, \$100.....	10 @ 15
Live Oak Wood, \$10 cord.....	10 @ 12 00
Reef, extra, dressed, \$10.....	8 @ 12
Sheep, on foot.....	2 @ 2 50
Hogs on foot, \$10.....	6 @ 6 1/2
Hogs, dressed, \$10.....	7 1/2 @ 8

Leather Market Report.

[Corrected weekly by Dilliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, Feb. 23.

SOLE LEATHER.—Shipments to the east still continue large, and several tanners have advanced their price one cent per lb.

CALF AND KIP SKINS.—There is no change in French stock, the exportation being extremely light. Domestic skins continue firm, with a tendency to advance.

Best French Calf Skins, \$10 doz.....	75 00 @ 100 00
Common French Calf Skins, \$10 doz.....	35 00 @ 75 00
French Kips, \$10.....	1 00 @ 1 30
California Kips, \$10 doz.....	50 00 @ 75 00
California Calf, \$10 lb.....	1 00 @ 1 25
Eastern Wheel Stuffed Calf, \$10.....	80 00 @ 1 00
Eastern Bench Stuffed Calf, \$10.....	1

HISTORICAL RECORD.

(Copyrighted.)

History of our Country Towns.—No. I.

SNELLING,

MERCED COUNTY, CAL.

(Written for the Press by Mrs. FRANCES H. McDUGAL.)

The historic wealth of California is, as yet, for the most part, a hidden treasure. The hills, the mountains, the ravines, the gulches, the obliterated tracks of the wilderness and the thoroughfares of populous towns, all teem with stories of exciting and thrilling interest—tales of heroic achievements, unwritten records of silent suffering, amid all the anguish of disappointment, despair and death, when human hearts broke and gave no sign, leaving no pen to write their history, no tongue to tell their sorrows.

Could the lives of the pioneers be faithfully written, they would, even in their naked truth, rival the romances of the Thousand and One Nights, and eclipse the wildest exaggerations of eastern fable. But the miners themselves, are generally unwilling to recall the bitterness of past experience; and hence their unrecorded achievements are fast fading out from the mind of man.

It is to rescue those heroic men and women from oblivion, and give them their true place and honor on the pages of history, that these waifs of the mountain side, through highways and byways, will be gathered together; and may they continue to call forth the latent memories of individual experience, until all our sectional histories shall have been faithfully collected, and worthily written.

PIONEERS OF SNELLING.

In the year 1849 a few Sonorians and Americans commenced river mining, above and below the falls of the Merced. Among the Americans were L. P. Wilson, Major Harvey, Judge Bell, P. Ford, H. McDonald, Evans and Wade, (who built the first ferry), and some others, whose names are forgotten. Samuel J. Scott, John M. Montgomery and Dr. D. W. Lewis were the first actual settlers. They built the first camp in 1849; and in 1850 they put up a frame house, one and a half stories high, which was occupied by Dr. Lewis as an inn. In 1852 this property was sold to William Snelling. During the next year Mr. Snelling built a large two story house, with porticos and verandahs, above and below, which was opened as a hotel. The place was thence known as Snelling's Ranch; and from this point the town of Snelling took its rise and its name.

A DEADLY CONFLICT.

In the year 1858 an event occurred, which threw the infant settlement into a terrific excitement; and to this day it is remembered as one of those appalling scenes, which our early pioneers were too often called on to encounter. On the 23d of January, as a party of men in the bar-room of Mr. Snelling's were engaged in a game of crack-loo, the first scene of a fearful tragedy was enacted. One by one they tossed up a half dollar and the man whose throw fell farthest from a crack in the floor, was to pay for the liquor. A dispute in regard to the relative distances ensued, when Bill Edwards, a very desperate man, drew his pistol on William Snelling, Jr. and killed him instantly.

The murderer escaped; but by his own evil deeds was soon brought to justice. He killed a man for his money; and a Mexican woman who saw the act informed against him, when he was taken and hung without judge or jury.

Bad as his character and his cause were, he left behind some friends. The most conspicuous of these were Stevens, Barclay and Wilcox, while the Snelling party was marshalled by Charles Bludworth, then sheriff of the county, Benjamin White and Dr. Goodwin. Some time after the death of Snelling the two parties met opposite the Court House, when the subject of contention was brought up, and a sharp quarrel arose among them, when the fight and the firing became general and a universal panic ensued. The horrible truth was soon known and made public. Three men were killed—Stevens, Dr. Goodwin and Barclay. Immediately after, Wilcox, the only man left on Edwards' side, mounted his horse, rode away, and was never heard of afterwards. Charles Bludworth and his brother-in-law, Benjamin White, feeling that they had the right on their side, boldly stood their ground. The grand jury of this county found a bill against them. They were indicted, tried and honorably acquitted.

THE FIRST FLOOD.

This occurred in the latter part of 1851. Dr. Fitz Hugh, since one of the most distinguished citizens of Snelling, was then living at Mariposa Creek, near what is now known as Plainsburg; his being the only family for many miles around. From the 20th of December till the last of the month the waters spread over an area of at least thirty miles, making the whole country impassable for man or beast. At the commencement of the flood, the Dr., who had been out hunting stock, caught a view of his premises from a high hill 20 miles off. Perceiving the extreme peril of his family, he put spurs to his horse; and dashing through the fast rising flood, arrived home about dark, to the

great joy of all at finding each other safe. His house, which occupied a strip of higher land about 60 feet wide, now stood with one end dipping in the water, while the other was elevated only about six inches above it. The house, however, maintained its ground, throughout the whole siege of two long weeks, during which they had nothing to eat but unground barley bread, garnished by a squirrel, or a hawk, whenever they were so fortunate as to catch one. But the town of Snelling, being then yet in embryo, sustained no further damage, than the extensive caving of its banks and loss of land. The great event in its history was

THE SECOND FLOOD.

It should be remembered that the Merced river has its source five or six thousand feet above the level of the sea, while the town of Snelling, only sixty miles distant, is but a few hundred feet above the common sea level. This great fall, in so short a distance, must give an immense impetus to any sudden rise, or liberation of its floods. The early and continued fall of rain in the autumn and winter of 1861-2, with its dreadful results, will long be remembered by the citizens of the Merced, the San Joaquin and Sacramento valleys.

At this period the river had begun to be studded with tin farms, where large fields of grain, orchards and vineyards were cultivated. Many of the farmers were extensively engaged in stock raising; and on the first alarming rise of the water, there was a general effort made to save the animals that had been feeding on the intervals; and many parties were seen driving their cattle and other creatures to higher land. But the valleys were rapidly flooded with water; and after exhausting all their efforts, wet from head to foot, from morning till night, they sat down in the palsy calm of perfect helplessness, to await their fate.

In all directions, over the wide waste of

measure, for the floor was rising and their stout hearted old anchorage itself began to quake and quail. The hall swung round with a tremendous lurch, and strained on the rope. They then saw that the old and the new parts of the building were separating, when there was a general rush among the ladies for the small or old part, which seemed to be firmer; and the last who went over had to jump more than a yard over the widening gap.

They then thought they had found a place of safety, but soon perceived that that was moving too, and their next refuge was in the oak. Planks were laid from the dining hall to the body of the tree and the ladies, five in number, one of them, the landlady, with two little children and a babe in the arms, all reached the tree in safety. And for the rescue of these thirty-two persons, there were no means at hand but a light little pleasure boat, which Mr. Bludworth had built for his young wife, a delicate and fragile thing, fit only for

"Sunny smiles and summer skies."

The very sight of it, dashing amid the angry waves, called forth a cry of horror; but under the skillful management of Harden Perkins, they were all brought off, one at a time, the transit occupying more than five hours of the most agonizing anxiety and fear. The brave and generous Perkins never recovered from his almost superhuman efforts. He took the consumption and died within the year.

The next morning the hotel went off, leaving only its ground floors behind and they soon followed. About half a mile down, the house went to pieces and all its treasures were scattered to the waves. The next night the people stood on the shore, watching by moonlight the parting struggle of the stern old tree. After having broadened its arms, and bound its roots by the buffetings of unknown centuries, it could not get away from its hold, without some

the panic caused by the flood, when another shock came, which threatened the complete annihilation of poor, unhappy Snelling. On the 12th of September, 1862, a destructive fire broke out in the store of Mr. Goldsmith. Only three houses were left where shelter could be procured; and these were only saved by keeping wet blankets on a neighboring store, with the prompt exertions of the men, aided by one lady, who, though then in delicate health, carried twenty-two pails of water quite a distance; and thus the fire was at length subdued and a fragment of the town preserved.

But the irrepressible energies of the yankee nation were neither to be quenched with water nor consumed by fire. The town was soon rebuilt and began to increase with a steady and healthy growth. At present it contains about eighty families and 300 inhabitants, of whom 125 are Chinese. Within the last two years the population has nearly doubled; and still, from day to day, the sound of the saw and hammer through all our streets, gives a pleasant promise of future increase.

INDUSTRIAL OPERATIONS.

The beautiful valley of the Merced, with its rich alluvial soil naturally indicates the leading business of the people—that of agriculture. The whole valley, more than thirty miles in length, by about one mile in width, is occupied by fine farms, but is not yet cultivated to the full extent of its producing power. Wheat, hay, wool, butter and cheese are the chief staples; while all the edible roots and fruits are produced in great abundance and perfection. A very important branch of industry is general stock raising. The numerous groves of oak furnish food to large herds of swine, and the fine pastoral region west of the San Joaquin, "invites to sheep husbandry." The culture of the honey bee begins to receive some attention, and experiments are being made in the product of cotton, which, in these rich bottom lands, with so genial a climate, ought to thrive abundantly.

By the statistical report of the Surveyor General, we find that the county of Merced contains 90,000 acres of cultivated land, from which was produced in 1869, 450,000 bushels of wheat, 216,000 bushels of barley, 65,000 bushels of Indian corn, 2,080 bushels of beans, 8,250 bushels of potatoes, 2,800 bushels of sweet potatoes, 10,000 bushels of onions, 10,315 tons of hay, 11,500 pounds of butter, 1,800 pounds of cheese, 631,713 pounds of wool and 30,300 pounds of honey. There were at the same time 3,513 horses, 43,290 neat cattle, 122,083 sheep, 11,296 hogs and 1,142 bee hives; and the assessed value of property was \$1,106,806. It is proper to mention here that this county has discharged all her indebtedness and has now more money in her treasury than any of the neighboring counties. And this alone is a strong testimony for the business ability and integrity of her citizens.

MANUFACTURES.

At the Merced Falls, six miles above the town, a woolen factory was established in 1868, by a joint stock company, with a capital of \$100,000. There are twenty-four looms, with corresponding machinery sufficient to produce 800 yards of cloth a day. The wool is taken in the rough and all the processes of picking, washing, dyeing, carding, spinning and weaving are carried on, the work employing about forty persons. Blankets, flannels, water-proof and broadcloths, all of a superior quality, are among the products. All the machinery and everything is kept in perfect order, and the staple employed is genuine wool, and not ground rags as in some places.

Mr. W. N. Nelson established his flouring mill in 1854 which employs three persons and turns out 5,000 barrels of flour yearly. Mr. Murray's grist mill, which occupies a fine large building some distance below, was built in 1861; and judging from the capacity of the place, it should produce at least as much as its neighbor. The Snelling people may well be proud of these substantial and useful works.

MECHANICS AND MERCHANDISE.

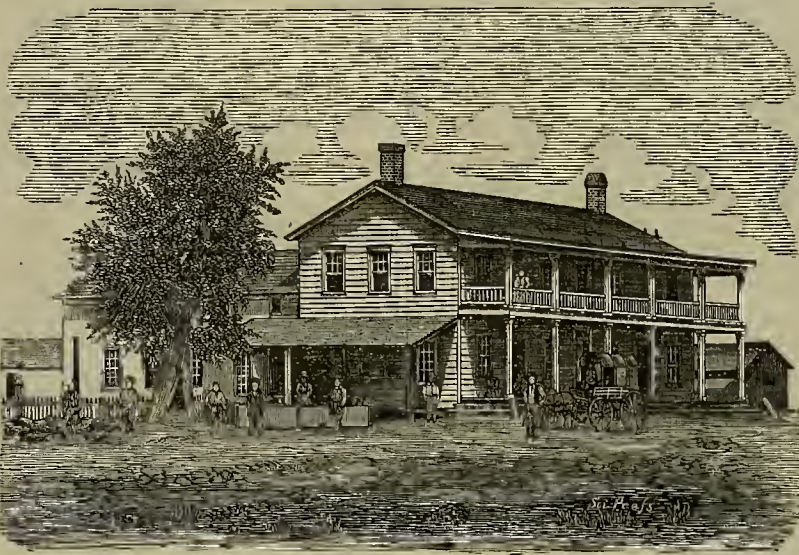
Besides a full supply of ordinary mechanics, there are in Snelling a saddler's, a jeweller's and a tin shop, and a spirit of activity and industry prevails through the whole place. There are four stores for general merchandise and one drug store, a bank and a printing office, where a weekly paper is published. The San Joaquin Valley Argus is conducted with ability far above that of ordinary country papers, its columns being enriched by productions from the facile pen of Mrs. Steele, the gifted wife of the editor.

PUBLIC BUILDINGS.

The Court House, a handsome and substantial building, with a strong stone basement, was erected in 1857, at a cost of over \$8,000. The Odd Fellows Hall is also a fine brick building, and was completed during the last year and just now the finishing touches are being given to the Methodist Church, a small, but very neat brick building that will cost 3,400. The school house is really an ornament and honor to the place. It was built in 1867 and cost \$6,000. It stands a little way above the village and has two large and lofty rooms for primary and grammar classes, with all the modern improvements.

There are two first class hotels, Coulter's and the Galt House. The latter, kept by Mr. Anderson, is in every respect worthy of its long standing and high repute. Coulter's Hotel is owned by Mr. Wilson and in all its arrangements bears testimony to the large and liberal policy of that gentleman.

There are two divisions of the Sons of Ten-



THE SNELLING HOTEL AND THE "BRAVE OLD OAK"—DESTROYED BY FLOOD.

waters, horses, cattle, sheep and hogs, were seen struggling with the waves, or seeking a momentary refuge on floating fragments. The rise had been gradual, until the dam of the Benton Quartz Mills, on the Merced river, thirty miles above, suddenly gave way. This was a heavy structure of solid masonry; and when it broke, mountains of water rolled down the valley, with a thundering sound, overwhelming everything with heaving and heaping floods.

From the great breadth of the area covered, and the immense volume of water thus suddenly poured in, it had all the characters of a stormy and turbulent sea. In the maddening fury of opposing currents large logs and heavy timbers were dashed against each other or thrown up on their beam ends or tossed like straws amid the whirling eddies, while the white capped waves came roaring and surging on, with every sweep reaching still further inland. It was indeed an appalling scene. The strongest mind was overwhelmed with terror and the stoutest heart trembled.

The SNELLING HOTEL standing some three or four hundred yards from the river was the first to quail under the mighty shock. There had been misgivings in regard to its safety for several days and a number of the boarders had left on that account. On the 11th of January, 1862, their worst fears were confirmed. The evening previous there had been considerable excitement; and Mr. Hall, the landlord, was a good deal alarmed; but Mr. Kean Buchanan, the celebrated actor, who, with his troupe and family were at the house, said he knew all about floods, and felt sure that in the present case there was no danger. This tended to calm the excitement; but in the morning, on putting down a pole just outside of the porch, Mr. Hall discovered that the ground under the house was caving in.

At this time the ladies were all up stairs and on being called down took refuge in the dancing hall. A rope was passed through its windows, and made fast to the great oak near by. But this was soon seen to be an ineffectual

force, powerful as the upheaval of an earthquake. It trembled, as if touched by an ague, it shook, it tottered, and then, with one terrible sweep, it fell prone; and the pride of a thousand years was borne away to perish—but not to be forgotten; for that brave old oak shall be remembered and venerated by descendants yet unborn.

On the same day the house of Dr. Fitz Hugh, Judge of the County Court, was found to be moving, and was only saved by being taken to pieces; while his family had to make their way into town through the mud and water for nearly a mile. Mrs. Fitz Hugh was at this time in very delicate health, and a baby in her arms. Their beautiful grounds, with all their conveniences and adornments, were laid waste.

A PERILOUS POSITION.

During the night of the flood, L. P. Wilson, then living at the Falls, in company with Mr. Muggler, went with a skiff to rescue the family of Mr. Yizer and when in the current the boat struck a tree then standing in the water. Mr. Wilson caught a limb of the tree, when the boat drifted round and left him clinging to the tree, where he remained through the night. What an age of anxiety and suffering must have been condensed in that terrible and fearful experience. Twenty-two hours elapsed before he was taken off. He was finally rescued by Frank Hood and Dutch Charley, after a hard fight with the current for more than six hours.

SPONTANEOUS COMMONISM.

After this catastrophe everything was held in common; for as all egress was forbidden by the floods, there was, for more than six weeks, a great scarcity of provisions, as well as clothing and beds. The old school house was made, in part to do the duty of a hotel. The most generous spirit prevailed among the more fortunate ones and whatever they had was shared with the sufferers. If any one saw what he wanted, he took it without molestation. Nothing was sold.

THE GREAT FIRE.

But the measure of affliction was not yet full. Scarcely had the people begun to recover from

*This drawing is from a photograph view taken before the flood. Its structure is a fair representative of the roadside hotels in the interior districts.

perance, whose ranks are daily increasing, greatly to the detriment of the bars and whiskey shops, which are among the lingering fragments of the old barbarism. There are in the place five physicians, and lawyers enough, at least to keep business affairs comfortably awake.

EDUCATIONAL INTERESTS.

The first regular public school was taught by Mr. B. Frank Fowler, and commenced July 8th, 1861, the average number of pupils, during the first term being only eleven. In the course of two years the school, still under the care of Mr. Fowler, increased to an average of twenty-seven. From very low beginnings, numerical and mental, it has steadily advanced in capacity, intelligence and numbers, and will compare favorably with any school in the State, the pupils now being about 100, employing two teachers; Mr. Fowler yet retaining the place of principal. The present Board of Trustees, A. B. Anderson, P. D. Wigginton and J. M. Montgomery, deserve especial remembrance for their bold and liberal policy in forwarding the erection and establishment of the new school house, and their general patronage of educational interests.

THE DWELLINGS.

Of this place are generally neat and comfortable; and many of them are tasteful and elegant, with highly ornamented gardens and grounds. The palatial residences of Messrs. Scott and Montgomery, a little distance from the town, would be worthy of notice, even amid city splendors. The former occupies a commanding position on a beautiful mound, fringed with cottonwoods, and girdled with oaks of a most royal bearing. From the Observatory one of the loveliest landscape pictures ever yet seen will reward the climber. The valley of the Merced, with its beautiful bluff, dotting and dimpling, but nowhere broken, lies revealed, the whole enshroued by a horizon of unrivaled beauty. The distant foot hills, stretching eastward, mount into the Sierras, through openings of which can be seen lofty peaks, looking Heavenward, with their crowns of eternal snow, standing still, white and solemn, as the gates of another world.

CANCER.

Cancer, or more properly *Carcinoma*, is well known to be a malignant growth or tumor, which, unrestrained, tends to open ulceration, rapid destruction of tissue, and death of its unfortunate victim in comparatively a very short space of time.

The name cancer was originally applied to the scirrhus, or hard variety of malignant tumors, from the supposed resemblance which the turgid blood-vessels, which radiate from it, bear to the legs and claws of the crab.

Carcinoma, from the Greek noun *Karkinos*, an eating ulcer, is the name usually employed by surgeons, as it is alike applicable to all kinds of malignant ulcerating tumors, as well as canceroid ulcers or *Epithelioma*, the latter of which includes *lupus* and cancer of the lips and face. As the name cancer is popularly applied to all forms of *Carcinoma*, I will use it in its popular acceptance in this article.

Extensive Prevalence of Cancer.

Cancer prevails to a much greater extent than most people are led to suppose. In England, outside of the city of London, the deaths from cancer have been known to average 2,332 per year. Estimating London in the same ratio, the deaths from cancer in England alone, would amount to nearly 3,000 per year. As the prevalence of the malady does not seem to be determined by local influences, it is quite reasonable to suppose that the English statistics show a fair average. Such being the case, the total number of deaths annually from cancer would amount to more than 150,000.

The English statistics show that three-fourths of the cases are among females. This difference is due to the extraordinary frequency of cancer of the breast and of the reproductive organs. The disease may make its appearance in any organ or tissue of the body, in either sex, and at any period in life, yet it occurs most frequently between the ages of 40 and 55.

The Causes which Produce it

Are as yet undetermined; yet it has been found that only about one-third of the cases are traceable directly to a hereditary taint or diathesis, while no general cause can be found for the other two-thirds. It has been observed, however, that they more frequently follow local injury than any other exciting cause. A blow upon the breast has frequently been the starting point of its development in that location, and the irritation produced by a hot, filthy clay pipe has frequently had the effect to develop cancer of the lip. Chimney sweepers' cancer, too, is traceable to local

irritation as its starting point. The fact, however, that equally the same exciting local causes will produce it in some and not in others, indicates that all are not equally constitutionally predisposed to it.

The Premonitory Symptoms

Of cancer are so mild and painless that, unless the suspicions of the patient are aroused, no notice would be taken of it. When in the breast, the first noticeable symptom is a small hard lump, which seems to be moveable, deep in the body of the mammary gland; but it can be handled without producing any pain. As it increases in size, it seems to come near the surface, and finally becomes attached to the skin. At this stage the skin turns red or purple, with large, distended blood-vessels spread out over its surface. Sharp, shooting pains are now felt, but the tumor is not very sensitive when touched or handled. The axillary glands enlarge and are sore and painful, and the skin and complexion assume a dusky hue. Some of the nodules of the tumor now shoot out prominently and break, when the patient and friends are presented with the distressing spectacle of an open cancer.

Canceroid ulcers, embracing lupus and epithelial cancer, are slower in their growth, are always hard, either as a solid mass or around the edges; but when once open they certainly do, as the name indicates, eat like a wolf.

The presence of cancer in the stomach, liver, or any other internal organ is not so easily determined as when it involves an organ which can be seen and felt. Its fatal tendency, however, is the same in all cases.

The Treatment of Cancer

Is both medical and surgical, together with proper sanitary regulations. The mind should be kept in as composed a state as possible, a good nourishing diet should be afforded with plenty of out-door exercise, when such is possible, but without fatigue. In the early stages of the disease it is certainly true that it has been cured by careful medical treatment, as experience and numerous well-authenticated cases go to show; therefore, when its invasion is once known or suspected, its treatment cannot be commenced too early. These remarks apply to all cases, whether they admit of either medical or surgical treatment. The only cases which admit of successful surgical treatment are, of course, those which are situated in external organs and tissues of the body. As a rule, while it is in the form of a tumor, and is concealed beneath and not attached to the skin, and the skin which covers it looks and feels natural and healthy, its medical treatment, under the direction of a skillful physician, should be diligently pursued, and no surgical interference should be for a moment thought of; but if the hard tumor becomes attached to the skin, or the skin over the tumor has become red or purple, with twinging, darting pains, or the tumor has already broken open and discharges a thin fluid, it is then high time to begin its surgical treatment. For this purpose there are two methods, to wit: the knife and the cancer paste. Of these, some prefer one and some the other. The use of the knife is much the quickest, yet as a radical eradicator the paste certainly deserves a preference.

When extirpation by the knife is resorted to, it is always recommended to go largely into the healthy surrounding tissues in order to include every root and branch of the malignant growth, for if a single cell or the least remnant of the tumor is left behind, a new growth is sure to spring up from it.

The paste, on the contrary, attacks only the morbid growth, and destroys it root and branch, while the surrounding tissues are left in a sound and healthy state, ready to take on a healthy healing process.

E. J. FRASER, M. D.

San Francisco, Feb. 13, 1871.

WHEAT SHIPMENTS.—During the past season 36 vessels have loaded with wheat at Vallejo, taking in 872,075 cents. During the same period 14 have loaded at Oakland, with 263,151 cents, and 58 in San Francisco, with 2,054,030 cents. There are no grain ships at present under charter to load for Europe.

"MAMMOTH EGGS."—The *Alta* speaks of a hen's egg received at that office, measuring 8½ by 6½ inches in circumference. George W. Thompson, of the stone quarry ranch, has presented us one of equal size, and says his pullets makes an every-day affair of such productions. One of his brood recently over-did the thing by laying a much larger egg, and soon winged to her eternal roosting place.

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARR before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the Press.]

The Chemistry of Common Things.

LECT. I. Feb. 18.—It is not my purpose, said the lecturer, to give a series of scientific lectures, but merely to treat scientific subjects in a practical and popular manner. I propose to talk now of common things, concerning which we ought to know much, but concerning which, as I have found by an experience of teaching during a thirty of a century, the majority of persons supposed to be educated, know little or nothing.

One of the most common things we know of, is the air we breathe. It is most fortunate, most providential, that those things which are necessary to our existence, are everywhere. This is the case with air; it exists everywhere, and without it there could be no life. Without it the temperature would be subject to great variations, for it acts as a mantle around the earth to prevent these. Without it there would be no morning or evening twilight. It is the medium of social, moral and intellectual intercourse, the medium of sound. Our bodies are made up of it, and to it nearly all plants are conveyed after death.

The atmosphere is made up of a variety of things, but I wish now to direct your attention to two of these principally,—to the two elements, oxygen and nitrogen. And first we will consider oxygen, which, potentially at least, is the atmosphere. This is

The most Common Thing in the World,

the most abundant. Direct observation has shown that it makes up more than one-half of the entire world. It constitutes eight-ninths of the ocean and one-fifth of the atmosphere. Three-fourths of all animals, four-fifths of all vegetables, and one-half of all mineral matter (of which the crust of the earth consists) is oxygen. So abundant is it that not only is there sufficient to unite with almost all bodies (and oxygen has the very strongest tendency to enter into combinations), but there is also an excess of it in the atmosphere in an uncombined, free state.

We can obtain oxygen in a number of ways. The best and easiest for purposes of the laboratory is to separate it from certain solid bodies. I have here a very common substance, chlorate of potash, which you can get at any drug-store, and over one-third of which is oxygen. If I mix this and black oxide of manganese in a glass tube, and heat the mixture, oxygen is set free as a gas, as is indicated by the brightness with which a spark glows when inserted into the tube. If I mix the same substance with charcoal and touch a lighted match to it, I get a very energetic combustion.

These experiments indicate another point,—that all combustion is merely the combination of oxygen with solid bodies. I introduce a piece of wood, the end of which is glowing into this jar of oxygen. The wood blazes out into a flame. I light this piece of phosphorus and put it into the jar. The phosphorus burns with an intense light. I introduce into another jar, full of oxygen, this steel watch spring, one end of which I heat previously by igniting a piece of sulphur which is placed there. The iron burns brilliantly, throwing out sparks in every direction.

There is no element in Nature which has so strong an affinity for other bodies as oxygen. It unites so readily with magnesium, for instance, that this metal will take it in quantity from the air and burn brilliantly. The combustion of fuel is but its union with oxygen. Oxygen is thus a source of power greater than any other. It is the source of power in heat and light. It is the cause of the decay of animal and vegetable substances; if we wish to stop this decay, we can do so by excluding atmospheric air. Oxygen is taken into our lungs, by breathing, and when traversing every part of our bodies, as is effected by the circulation of the blood, it meets and unites with certain bodies, burns them, and thus keep up the temperature of the body which is necessary for existence. Every vital movement, the motion of a muscle, the action of the brain, is connected with this union of oxygen with other elements.

Another Common Thing—Nitrogen.

Another common element, with which oxygen is often associated, is nitrogen. The following table shows the composition of the atmosphere, nearly four-fifths of

which is nitrogen. The first column gives the names of the constituents, the second their percentage, and the third their respective amounts:

Oxygen.....	20.61	1,233,010,000,000,000 tons.
Nitrogen.....	77.05	3,994,393,000,000,000 "
Carbonic Acid....	.04	5,287,000,000,000 "
Aqueous Vapor....	1.40	54,460,000,000,000 "
	100.00	5,287,350,000,000,000 "

Nitrogen is a gaseous body, colorless, transparent, tasteless and odorless. The same may be said of oxygen. That these bodies should have these properties is a wonderful provision of Providence. As we are constantly inhaling them, if they had taste, our nerves of taste would be constantly used, and therefore would become irritated and deranged, and the whole system would be thrown out of order. A similar effect would follow if they affected the sense of smell.

If we burn phosphorus under an inverted jar placed over a water bath (so as to prevent fresh air from entering), the phosphorus will take up nearly all the oxygen of the air and we shall have left principally nitrogen. Now if we insert a lighted taper into a vessel of nitrogen, the flame will be extinguished. If we make further experiments, we shall find that nitrogen exhibits none of the activity of oxygen, but is mostly indifferent and inert.

Oxygen has a powerful effect in destroying organic bodies, and if it were alone in the air, it would act much more energetically than it now does. The processes of combustion and decay would be very rapid, all the processes of life would go on with great energy. If we put a small animal in an atmosphere of oxygen gas, it dies in a short time from the great stimulation of all the vital functions. Hence it is very important to have the oxygen of the air diluted in, and modified by, an inert element like nitrogen.

Consumption of Oxygen.

An adult person consumes between one and two pounds of oxygen daily. If we reckon the population of the world at a billion, and allow one pound per day to each person, and calculate approximately the amounts consumed in other ways, we may take the daily consumption of this element to be about as follows:

Man.....	1,000,000,000 lbs.
Animals.....	2,000,000,000 lbs.
Combustion.....	1,000,000,000 lbs.
Decay.....	4,000,000,000 lbs.
	8,000,000,000 lbs.
	= 3,571,428 tons.

Now, if the daily consumption of oxygen should continue the same, it would apparently take 945,098 years for all the oxygen of the atmosphere to be consumed,—not destroyed but locked up. But we cannot reduce the amount of oxygen except in a very small degree, say four or five per cent., without endangering the life of the higher order of animals. Hence it would take but a short time to render the existence of man impossible on the earth, if there were no means provided for restoring this oxygen to the air.

But there are operations going on which effect this. The rain and aqueous vapors absorb the poisonous carbonic acid, which is one of the chief products of combustion, removing it from the air and carrying it to the plants which feed on it, under the powerful influence of the sunlight, retaining the carbon and giving back the oxygen. We need have no fears then that our supply of oxygen will fail us. Far from it. Time was, in old geological history, when the air abounded in the poisonous carbonic acid to such an amount that no animal life could be sustained on the earth, when no animals existed, in fact. But the first life was of plants, and these purified the air until animals could live.

We see then what a tremendous power oxygen has. We can make no movement of muscle or brain without its uniting with other bodies. Its union with metals, in the battery, gives force enabling us to communicate (by means of the telegraph wire) with distant parts of the world. Its union with fuel gives us heat and motion, warms our houses and drives our engines. Without it we could not carry on the ordinary operations of life, nor even support existence.

QUICKSILVER.—The Nevada papers state that a ledge of quicksilver has been found about 18 miles from Nevada city. The ledge is 30 feet wide. The Santa Cruz Times reports that the development of the Santa Cruz Quicksilver Company are going on steadily; buildings are in course of construction and their tunneling is being pushed forward rapidly.

THE BOISE VALLEY QUICKSILVER ASSOCIATION are doing a good work. According to the Boise City News, of the 14th inst., they had already imported and refined about 138 tons of their valleys, and other local sources of silver.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.
A. T. DEWEY, GEO. H. STRONG
W. B. EWER, JNO. L. BOONE.
Office, No. 414 Clay St., below Sansome.

San Francisco:
Saturday Morning, Feb. 25, 1871.

Gold and Legal Tender Rates.
San Francisco, Wednesday, Feb. 23, 1871. Legal Tenders
buying @90½; selling @90¾. Gold in New York to-day
111¾.

Table of Contents.

Improved Vehicle, Ill.; Tension Wheel for Sewing Machines, Ill.; Lubricator for Steam Engines, Ill.; Water Rights in the Mines, Ill.	113
MECHANICAL PROGRESS.—Syrup Purification; Alloys of Tin and Iron; Bronze Guns; Electric Signals; Tapioca Paper; Steel Welding; Dolomite Light; Piston Packing.	114
SCIENTIFIC PROGRESS.—Vertebrates; Ohio Gas Wells; Gold Compounds; Inset Current at Gibraltar; Eclipse; Mt. Washington Observatory.	114
Notes on Mariposa County; Banner District, Cal.; Bull Run District, Nev.; Engineering Projects.	115
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.	116, 117
History of Snelling, Ill.; Cancer; Chemistry and its Applications; Quicksilver.	118, 119
Notices to Correspondents; The McGarrahan Claim, Desilverization of Lead by Zinc; List of Patents; Recent Patents.	120
Roasting Furnace, Ill.; Orange Culture, Ill.; Quartz Mills in Montana; Academy of Sciences; Oregon Coal.	121
HOUSEHOLD READING.—Domestic Receipts; Mechanical Hints; How to Make Good Soups; Life Thoughts, etc.	122
New Publications; Rainy Season for Twenty-One Years; Artesian Wells and their Value; etc.	124

Notices to Correspondents.

A. J. C.—Inyo County. Your letter is in type, but as the engraver has been unable to make the engraving, on account of press of business, it must be deferred another week.

BANNER.—Communication received. In regard to the books, a letter has been written to you.

THE RAIN, which commenced in this city on Monday, was the heaviest of the season, amounting to over two inches. The storm was general throughout the State and has proved most satisfactory everywhere. The result cannot fail to give much elasticity to business, since it affords a very fair guarantee for good crops of wheat, wool and gold. The rains for the present year, though still very light in the aggregate, should be counted more than they actually measure, from the fact that they have fallen under much more favorable circumstances than usual.

GOLD IN ALAMEDA.—Early in February-gold was reported discovered in Amador valley, Alameda county, about ten miles from Haywood. A district has been formed, the "Dougherty Mining District," and laws made. A claim is 50x100 feet. No rich strikes are reported, but several persons are said to be earning \$ to \$6 per day.

THE STORM hit of the 20th, was one of the most accompanied by the play, which in this city. into Ne- e in sev- er an fall, 'er-e

Desilverization of Lead by Zinc.

Very soon after Pattinson invented his process of separating lead and silver, Alexander Parkes, of England, patented his process (in 1851) of effecting the separation by means of zinc. He found that zinc, when melted with argentiferous lead, combines with the silver and, rising to the surface of the metal bath, forms a crust which can be removed, leaving in the lead but a very small amount of silver and a little zinc. His process consists, in brief, in melting the lead in a kettle, adding zinc, stirring the mixture thoroughly, then allowing the zinc to rise to the surface when it was removed. The lead, as it contained too much zinc for mercantile purposes, was run into a reverberatory furnace and there kept at a moderate heat until the zinc was oxidized, when it was tapped off, leaving the oxide. The zinc scum, which, besides silver, contained considerable lead, was heated in a kettle with a perforated bottom, so that the lead was melted and run off, and then further heated to oxidize the zinc, which was then removed by hydrochloric or sulphuric acid. A modification of this was, after liquating the lead, to heat the zinc alloy in small clay pots, distilling off the zinc.

Although this process apparently offered several advantages over the Pattinson method, yielding more silver and demanding much less labor, etc., yet on account of practical difficulties experienced in separating the desilverized lead from the zinc, and in treating the rich zinc mixture, it never came into extensive use, until in 1866, Prussian smelters again took up the matter and experimented extensively. These experiments gave so promising results that the method, with modifications, came to be largely practiced.

The principal modifications were in the manner of separating the poor lead from the zinc in it, and in the treatment of the zinc scum. One of the first plans tried, for the first point, was to chloridize the zinc, and drive it off by volatilization. For this purpose the desilverized lead was heated to a high temperature and stirred up with chloride of lead, with salt, with a mixture of sulphate of lead and salt, with the salts from the manufactories at the Stassfurth salt works (these containing alkaline chlorides and, more especially, chloride of magnesium), or with several other chlorine compounds. Another plan was to pass the lead through a shaft furnace with a flux rich in silica, whereby the zinc was partly volatilized and partly taken up by the slag. A third method was to oxidize in a refining furnace, a rather unsuccessful method, or by using oxidizing agents, as soda, nitre, or super-heated steam. During an extensive trip among the mines and furnaces of the Harz and the Rhine provinces, we saw the several modifications of the two first plans mentioned, and were given very satisfactory results.

For separating the rich mixture of zinc, silver and lead, various methods were also tried. In all of them the lead is first liquated. The next step was varied in different places. One way was to pass the remaining mixture through a shaft furnace, which process gave a very rich lead, which was then cupelled. Another was to melt in reverberatory furnaces with lead matte and slag, or with litharge, whereby also rich lead for cupellation was obtained. Still another was by treatment with acids.

All of the methods found supporters, and favorable statistics were given in each case. But it appears that all have since given way in favor of those of M. Cordurie, of France. As the subject is one of the highest importance to lead smelters, we give a short summary of the Cordurie process. It is taken from a very interesting pamphlet which we have just received from Mr. Frederick Prime, Jr., the able Professor of Metallurgy and Mineralogy at Lafayette College, Easton, Pa. We refer our readers who desire fuller particulars to the pamphlet itself, which is reprinted from the *Technologist*.

The process may be divided into: 1st. Desilverization of the lead. 2nd. Refining the desilverized lead; 3d. Treatment of the scum.

1st.—About 22,000 lbs. of lead are put in a kettle and melted. The zinc is introduced into the metal near the bottom of the kettle, being placed in a perforated box to the end of a revolving shaft, and attached to the shaft by wings, which by their revolution distribute a distribution of the rising zinc. After the zinc has been mixed with the lead, the mixture is removed. It is found necessary after each addition of zinc

to stir for some time with ladles, an operation which possibly might be dispensed with, were the wings larger and more numerous. The amount of zinc used is 1.1 per cent.; the length of time necessary for melting and ladling out, 20 to 24 hours. The amount of silver left in the lead is 79 grains to the ton. The original amount is, at Havre, 0.04 to 0.06 per cent.; at the Hartz works, about 0.01 per cent. The zinc scum, after being freed from lead by liquation in small kettles at quite a high temperature, holds 2½ to 3 per cent. of silver.

2nd.—The desilverized lead is put in kettles, holding about 11,000 lbs. each, which are heated to a light cherry-red heat; hoods are put on and superheated steam injected near the bottom of the kettle under a pressure of four atmospheres. In about three hours the whole of the zinc is oxidized and is skimmed off. The production of refined lead, of very good quality, is 80 to 84 per cent.

The cost of these two processes at Havre, where the workmen earn from 80 to 100 cents daily, is 9½ cents per cwt. for wages, coal and zinc; in the Hartz, 12½ cts. The loss of lead is said to be not over 1 per cent; there is no loss of silver, according to fire-assay, but, on the contrary, a slight increase. The necessity of using a high pressure is not apparent, from the Hartz experiments, or even of super-heating the team.

The oxides formed by refining are washed on an incline plane. Thus, globules of lead are obtained, which are refined; also lead oxide; and finally a mass composed of equal parts of zinc oxide and lead oxide. These last are again treated in ways, which we have no space to describe here.

3rd.—The rich zinc scum is liquated, and the lead therefrom goes back to the first kettle. The residue is again treated with steam (an important feature of the process) whereby the alloy of lead, zinc and silver is decomposed, giving rich lead (which is cupelled) and rich oxides of zinc and of lead.

At Havre, where hydrochloric acid costs only half a cent per lb., the oxides are treated as follows: They are separated from the intermingled grains, consisting principally of a refractory lead-silver-copper alloy and some metallic lead, by sifting under water. They are then treated with hydrochloric acid, which forms soluble chloride of zinc, which is thrown away. The residue is melted in iron kettles, giving rich lead (cupelled) and slags of chloride of lead. The last are reduced with lime and coal in a furnace, the resulting lead cupelled and the slag re-smelted. The lead from this smelting is refined and sold as antimonial lead.

In the Hartz, where acid is more costly, the oxides are introduced into the cupelling furnace, during the operation of cupelling.

A series of excursions in Germany, during a period of three years, convinced Prof. Prime that, of all methods of zinc desilverization, Cordurie's is the best and most economical. With local modifications, he thinks it is suitable wherever the price of zinc is not exorbitant. At the upper Hartz, the treatment of 1,653,440 lbs. lead, containing 2,770 lbs. 11 oz. silver, gave a loss of 29,303 lbs. lead, and a gain of 4 lbs. 1 oz. silver over the fire assay. The total cost of treatment (except superintendents pay) amounted to 23 cents per 110 lbs.

There seem to be many advantages over the Pattinson process. It is much cheaper, there is a less loss of metal, only a quarter as many laborers are required, etc., etc. It would appear that the process might be introduced into the United States, with, of course, the modifications required by the price of acid, fuel, wages, and other local conditions.

THE MCGARRAHAN CLAIM.—The managers of this job seem to have some wonderful facilities in manipulating politicians. Defeated in the courts of law, denounced by an upright Cabinet officer and the honest Commissioner of the Land office, they have been able to oust the two latter and to get the House of Representatives to override the decisions of the former. There now remains to be seen what they can do with the Senate and then with President Grant. Their success so far in carrying through a declared fraud is ominous. Our belief in human justice, as exemplified in the highest departments of our government, will be sadly jarred if they finally succeed. We still trust that the Senate or the President will put a stop to the scandalous proceedings.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

- FOR THE WEEK ENDING FEBRUARY 7, 1871.**
SHOES FOR THRASHERS.—Dennis W. Hollihan, San Francisco, Cal.
HYDRAULIC TURNPIPE.—Samuel Adams, Michigan Bluff, Cal.
APPARATUS FOR CLEANING SULPHURETS AND OTHER ORES.—Charles C. Coleman, San Francisco, Cal.
BOOT-JACK.—Ezra Coleman, San Francisco, Cal.
EXPLOSIVE COMPOUND.—Joseph Hafenegger, San Francisco, Cal.
CAM FOR QUARTZ MILLS.—Oliver P. Hart, Logtown, Cal.
PEN-HOLDER.—Henry Roth, Virginia City, Nevada.
WHEEL FOR WHEELBARROWS.—George Withington, Ione City, Cal.
DEVICE FOR SAVING GOLD AMALGAM AND QUICKSILVER.—Oliver H. Young and Daniel J. Vaughn, Wisconsin Hill, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

GANG PLOW.—J. Harris, S. F. Mr. Harris has sought to construct a plow in such a way as to insure the greatest reduction of cost, and at the same time secure the greatest ease in operating and regulating it. He uses a single beam wide enough to receive the attachment of the two plows, or else two beams, if desired, to form a frame in the usual manner. The forward end of the beam rests directly upon the axle, and to its front end is secured the pole. The axle is straight and mounted upon the hearing wheels; and a projecting plate or standard is fixed upon it at each side of the frame. When the plows are depressed, so as to enter the ground, the beam hears on the axle between the standards, which then stand at an angle pointing towards the rear of the beam. Upon the inside of each standard, and above the axle, is secured a friction roller, which serves as a cam to raise the frame and plows when the axle is revolved, this being effected by means of a suitable lever properly attached to the axle or to the standard, as most convenient. A metal guard piece has its two opposite ends secured to the underside of the beam, on each side of the axle, being bent so as to enclose the axle and keep it in place under the beam, when the axle is turned and the plows are being raised. The beam is tilted to one side by means of a screw, by setting which properly the plows can be made to work upon a level when one of the wheels is running in the furrow and the other on the unplowed ground. By this construction, it is claimed, gang plows can be constructed at a small expense, and yet work as well as, while being more durable than, the more complicated forms.

GUN-LOCK.—E. B. Hendee, S. F. This invention relates to a very simple, effective and safe gun-lock, which will be more convenient than the locks ordinarily used. It consists of but three main pieces and a link, and is attached to the gun on the underside and inside the guard piece. There is also a cap or cover for protecting the lock from the weather and to guard against the possibility of accidents. By the construction, a number of advantages are claimed, some of which are as follows: The necessity of cutting away, and thus greatly weakening, the stock of the gun is avoided. The hammer is removed from its usual position, where it is apt to interfere with the accuracy of the sight by drawing the attention of the gunner at the moment it is expected to fall. The position of the cap prevents any possibility of pieces of it striking the eye. The number of pieces in the lock is reduced, and consequent simplicity and durability are obtained, and the parts are easily cleaned. The cover affords especial protection from weather and accidents. The hammer can be brought to a full cock while the gun is at an aim, and thus be fired very rapidly, especially when provided with a self-loading device. The lock can be applied to arms of all descriptions.

A New Roasting Furnace.

For the purpose of obtaining a furnace which will effect a thorough roasting of the ore, and a condensation of the valuable substances carried off with the fumes, while at the same time the cost of building will be reduced to a minimum, Messrs. Gerrish and Hinkle, of this city, have invented the construction which is illustrated below.

Fig. 1 shows a vertical section of the furnace, and Fig. 2 an end view; Figs. 3 and 4 show horizontal sections through the two parts of the furnace, at Mand P. Here A denotes the hopper in which the unroasted ore is placed. In this hopper revolves a shaft, on which are attached horizontal arms, by means of which the ore is stirred up and prevented from clogging. From this hopper the ore falls upon a cone (of iron or other suitable material) with grooved sides, which revolves and thereby feeds the ore in a steady stream or sheet into the shaft, S.

This shaft rises to a height of about 40 feet from the ground, is circular, or rather conical, in shape, and consists of an iron casing lined with brick. At its lower end is a partition, C, of the size and shape indicated, placed just above the openings, O, which divides the shaft into two flues, so to speak. The object of this is to regulate the currents of hot vapors rising from the fires, and to enable one to obtain a greater heat at the upper portion of the shaft.

The ore falls down the shaft, where it is subjected to the action of the heat rising from the fireplaces, into a space below. On each side of this space, and near its upper portion, is a fire-place, N, N, (see Figs. 2 and 3) communicating with the space through, O, O. This space has a sloping floor (which is incorrectly given as horizontal in Fig. 1) so that the roasted ore will slide into the chamber, H. By means of the partition, U, and the door shown in Fig. 1, the space below the shaft can be entirely shut off from the chamber, H, when desired. This door is raised or lowered by means of a chain passing over a pulley and weighted, as denoted in Fig. 1.

In the floor of the chamber, H, are two openings, L, L, through which the roasted ore can be let into cars, K, for transportation to any required point. These openings are generally closed by plates hung on a central shaft. The chamber, H, is provided with a door, M, and a valve, V, in the top, the last being opened for the escape of vapors when the cars are being loaded. In order not to interfere with the process, while the ore is being removed from H, the door below V is closed. At other times it remains open, permitting the roasted ore to fall continuously into the chamber.

The fumes, etc., from the shaft, S, pass through the flue, F, into the condensing shaft, R. At a suitable point, E, (shown at the junction of S and F), is an auxiliary fire-place (for effecting the more perfect roasting of the fine ore carried through the flue) which is given in side-section in the small figure at the right of Fig. 2. This is provided with a damper for any possible contingencies.

At the top of the condensing shaft, R, is a reservoir, T, from which water is permitted to fall through the shaft in the form of spray, regulating and aiding the draft, while it condenses the condensible portion of the fumes. The water, etc., falls to the bottom of the shaft and escapes out through P into the tank, J. The non-condensable vapors are carried off through the flue, I. The arrows show the direction of the currents. D denotes openings by which one can get at the flue, F, in order to clean it out, an operation shown in Fig. 1, and rendered necessary, as considerable matter will accumulate in the flue.

By this construction, it is claimed, the ore can be thoroughly roasted, while many

advantages are gained over other furnaces. The roasted ore can be removed without exposing the workmen to the dangerous vapors or requiring much manual labor. The draft is maintained and regulated, and all valuable metals are condensed from the fumes.

A very important point claimed is the cheapness of construction and the dura-

Orange Culture.

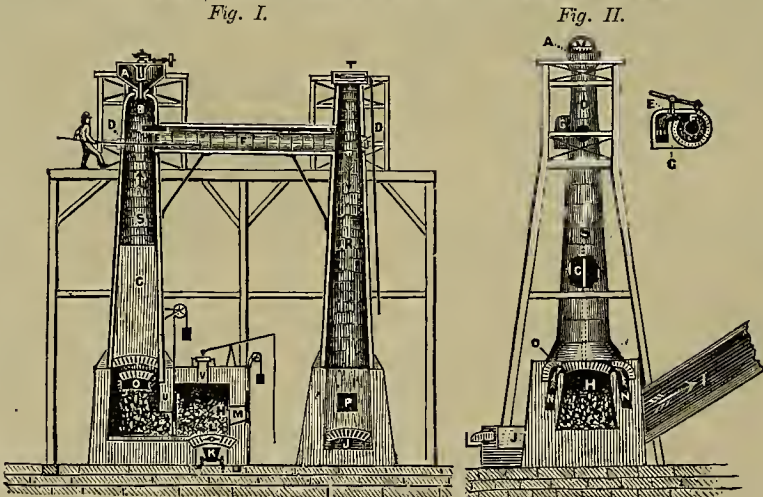
The success that has attended the occasional and mostly fancy cultivation of the orange in various parts of the central portions of the State, has suggested the possibility of its cultivation for profit in many of those localities. Experience seems to shew that oranges may be successfully



A "BOUQUET" OF CALIFORNIA ORANGES.

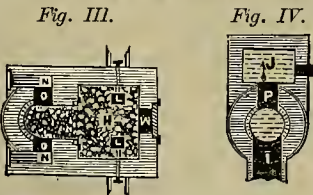
bility of the apparatus. Rough estimates place the cost of the furnace at four or five thousand dollars, although this matter has not been definitely decided upon as yet. The whole arrangement can be brought within a small area of surface, the large and costly condensing chambers being en-

raised as far north as Marysville. The oranges grown upon the Vallejo place, this last season, large quantities of which have been sold in this city, were pronounced very superior in quality. They were large, delicate, juicy, of fine flavor, and commanded a good price and ready sale.



THE GERRISH & HINKLE ROASTING FURNACE.

tirely dispensed with. The inventors, G. M. Gerrish and Philip Hinkle, assure us that their plans have been passed on favorably by a number of persons well skilled in the theory and practice of roasting operations. Steps have



been taken to secure their rights through the SCIENTIFIC PRESS Patent Agency. Those desirous of learning further particulars may address Gerrish, Hearst & Co., 14 Hayward's Building, S. F. The details of construction etc. may also be seen at the Union Foundry, First street, where a furnace is being built.

Heretofore the greater portion of the oranges raised in our State have been produced in the vicinity of Los Angeles, where this fruit certainly thrives in great perfection. As an evidence of the thriftiness of the orange trees there we have had an engraving made, as annexed, of a branch, plucked a few days since from a tree in the garden belonging to Mr. Paul Kern, and standing within the limits of the city of Los Angeles. It was brought to this city by Mr. D. McLaren, photographed by Bradley & Rulofson, and afterwards placed on exhibition at the Odd Fellow's Library where it was examined by great numbers of our citizens.

This branch is about two feet long, and something less than an inch in diameter, where it was taken from the tree. It contained, when taken off, 75 oranges, five having dropped off after they were matured,

but before the branch was removed from the tree. Thirty-seven, only, are seen in the engraving, the balance being concealed by the foliage, or fruit in front. When looking up directly underneath the branch, the eye rests upon a perfect mass of fruit, much as it would appear if packed in a basket. We doubt if a more prolific growth could be produced in any part of the world.

The tree from which the branch was taken is about 13 years old, and bore in all about 2,000 oranges.

Academy of Sciences.

At the regular meeting, last Monday, a large number of contributions were received, among them a large collection of European plants, specimens of various woods, and a specimen of the fiber of the Mexican Maguey plant, which fiber is used in the manufacture of twine, rope and textile fabrics.

Professor Bolander said that he had seen in a newspaper a statement that parties were making arrangements to cut peat in the San Joaquin valley, and inquired if any real peat was known to exist in California. He expressed the opinion that the geological and climatic conditions of the State were not favorable to the formation of peat. This substance is formed by the decay of vegetable matter constantly under water. Where the vegetable matter was subject to overflows, as was the case along the San Joaquin river, earthy matter must be deposited, which would prevent the formation of real peat.

Dr. Gibbons stated some observations he had made regarding the rain in this State. He said that in the Eastern States the rain begins in the quarter from which the cloud comes, while upon the coast the rain begins to fall first in the quarter toward which the cloud is being blown.

At the next meeting, Prof. Davidson will give an account of observations made in Europe of the late eclipse.

QUARTZ MILLS IN MONTANA. We published in our issue of Jan. 7th, a table of the quartz mills on the coast from the Pacific Directory, which, we said, was probably as correct as could be obtained in any publication. The reputation of the work is such that the Commissioner of Mining Statistics does not hesitate to use it, as he tells us. We still believe that our general opinion of the Directory is right, although we cannot always endorse the exact figures. But we are always glad to be corrected when in error, and give the following from the *New North West*, which says that our table for Montana was wrong. The paper does not give any statistics in return, and it is just on this account that it is so difficult to get the exact figure. It says:

We believe that in Deer Lodge county, during the year 1870, up to October 1st, there was only one mill, of 15 stamps—the Cable City, Hanauer mill—at any time in operation. Since then the James Stuart mill, of Philipsburgh, has been started up by Capt. Plaisted. Madison County had not, we think, more than five or six mills in operation during the year, and all the Counties are over estimated. Mr. Langley has not revised his Directory of Montana, and it does not give the "correct" statistics in this respect. While wishing there were 43 quartz mills pounding away in Montana, it is prejudicial to the territory to have that number published and the few that are in operation have their yield accredited to such a multitude.

OREGON COAL.—The *Statesman* of Feb. 3d, says Frank Cooper is down from his coal bank at the head of Butte creek, and we learn from him that he is now running into a ledge of excellent coal ten feet thick, which improves as he goes in. Mr. Burrows has tried 1,500 pounds of this coal, and certifies that it produces gas well, but doesn't yield coke as well as could be desired. Cooper says that this coal bed is 280 feet above the creek, and slopes upward in the hill, which makes drainage without cost. He has been making lime and cement in a lime quarry near by, as a source of revenue, and with the proceeds has been prospecting the coal beds near by. There is also iron of the best quality near by, the ore being very rich and in immense supply.

HOUSEHOLD READING.

Making Cake.

[Written for the Press.]

"Come here, Helen," said Mattie, "Aunt Lucy is going to show us how to make cake." "O, Auntie, will you, really," said the little sedate Helen, "Well, I for one, am very glad; for your cakes are always so light and nice, that when we go to picnics or surprise parties, every one that knows anything about your cooking asks for some of your cakes, and some one is sure to ask me how they are made—especially, your jelly cake."

"Well, girls," said Auntie, "as you have come to stay the afternoon, we will make a jelly cake for tea; or you may make it, and I will show you how; for you will find it a good plan to be able to do such things yourselves, if you want them well done. Then, if you ever have servants to manage, you will not find yourselves entirely at their mercy. I have had some experience in that way, which I will relate to you some other time; but now we will make our cake."

First, take two cups, even full of white sugar; pour it on the mixing board, roll it fine—there, you see that is better; there will be no hard lumps in your cake to make it heavy. Put your sugar in the mixing pan; now get four eggs, select the large ones, break the yolks in the sugar and turn the whites on that platter. Helen, you may take a knife and beat the whites to a stiff froth; and you, Mattie, may take that spoon and stir the sugar and yolks together. Now I will sift two cups of flour, then take one heaping teaspoonful of baking powder and rub it into the flour with my hands; now put one fourth of a cup of water on the sugar, then the flour; now for flavoring, we will put in a little extract of lemon. Now Helen, if your eggs are beaten enough, we will stir them in, very carefully—there, our cake is made, and now we will butter the round pie tins; about ten I think will do. Spread the dough very thin; be careful not to bake too hard, if you do, the jelly will not stay on nicely or look as well. Here, Helen, you spread the cakes.

Mattie, bring that last cake from the oven. There, now you see how it is done. It has taken more time to show you than to have made it myself; but I am glad you want to learn, and as you grow up, you can become useful as well as fashionable.

I am going to bake bread to-morrow, and I will show you how I make my yeast. First, I take three good sized potatoes, peel and wash them, then grate into a small pan, then add one tablespoonful of sugar and one of salt. Now stand the pan on the stove, and pour one quart of boiling water on the mixture; stirring quickly all the time. Now remove from the fire, when nearly cold; stir in a cup of baker's yeast, and as soon as it rises it is ready for use, and will keep good for two weeks, in cool weather. By saving a little of this to start with, you can keep good yeast all the time. I think you must be tired by this time, girls, and I see your uncle coming to supper; so we will try your cake. You can also take some home and show your mother your first baking. Good evening girls." "Good bye, Auntie; we are coming again, next week, if it will be agreeable to you."

L. L. B.

"Your ticket, sir," said a conductor to a gentleman who, having been a season ticket-holder for some time, believed his face was so well known that there was no need for him to show his ticket. "My face is my ticket," replied the gentleman, a little annoyed. "Tudeed!" said the conductor, rolling back his wristband and displaying a most powerful fist, "well my orders are to punch all tickets passing on to this platform."

OVERTAKING THE BRAIN.—A meeting has been held in Charlestown, Mass., to consider the subject of overtaking children's brains by the present method of education. Such meetings should be more general. It is a crying evil, and, it is to be feared, a growing one.

It is strange the only chapter in the Bible written by a woman (the mother of King Lemuel) contains a plea for woman's wages: "Give her the fruit of her hands and let her own works praise her in the gates."

Domestic Receipts.

MULLED WINE.—Boil together one tumbler of water, half a nutmeg, a small stick of cinnamon, a dozen cloves slightly bruised, the same of allspice; reduce it by boiling half; strain the spiced water into a pint of good sherry or Madeira wine. Set it on the fire, and when it begins to bubble, take it off the fire; sweeten with loaf sugar and serve. Cider may be mulled in the same way.

WINE WHEY.—One pint of boiling milk, a tumblerful of good Madeira wine; boil until the curds form. Pour off the whey into a pitcher; sweeten and serve. Cider may be used instead of wine.

TO MAKE SAUCE TO POUR OVER BOILED FOWLS OR MEAT.—One pint of fresh sweet milk; stir to it slowly a pint of boiling water; rub two heaped teaspoonfuls of butter; two even teaspoonfuls of flour; put this to the milk. Stew it until of the consistency of cream, shaking the stew-pan frequently. Season with salt and the juice of a lemon. If a whiter sauce is preferred, use more milk. If it is preferred to have it colored, beat up the yolks of two eggs; pour the sauce to them slowly, beating and stirring rapidly. Put the stew-pan on the stove long enough to take off the raw taste of the egg; one or two minutes will suffice. Pour a part of the sauce over the meat as a veil; season the rest, in any way liked, and send in a tureen.

BIRDS FOR CONVALESCENTS.—Lay them upon the gridiron; broil until a light brown color; then put them in a stewpan; pour over hot water enough to cover them. Let them stew until tender. Season with a little fresh butter, pepper and salt. Chicken, birds, and squirrels, stewed in a double kettle, are very delicate for invalids. If permitted, stuff the fowls and birds with minced oysters.

DOUGHNUTS.—Take seven cups of bread dough, when light mix, into it one and a half cups of melted lard, with one of sugar and a teaspoonful of soda—when it has again become light, roll it out; cut it into what shapes you please, and boil in hot lard. To succeed best, the dough should be mixed with milk.

HOW TO COOK CABBAGE.—After taking off the outside leaves, quarter the cabbage and wash each quarter separately in water rather more than tepid—as water of this temperature makes insects drop out. After rinsing in cold water, boil in plenty of salted water in which a little soda has been dissolved. Boil a little over an hour.

HOW TO COOK BEETS.—Beets should be carefully washed, but not cut before boiling, as cutting then allows the juice to escape, leaving them white and hard. In summer boil them an hour in salted water, and in winter boil them four hours. After boiling, scrape off their skins, and cut off the threads hanging from them.

Mechanical Hints.

WASHING FOR ROOFS AND BUILDINGS.—Slake lime in a close box to prevent the escape of steam, and when slaked, pass it through a sieve. To every six quarts of this lime, add one quart of rock salt and one gallon of water. After this boil and skim clean. To every five gallons of this, add, by slow degrees, three-quarters of a pound of potash and four quarts of fine sand. Coloring matter may be added if desired. Apply with a paint or whitewash brush.

This wash looks as well as paint, and is almost as durable as slate. It will stop small leaks in roofs, prevent the moss from growing over and rendering it inflammable from sparks falling on it. While applied to brick work it renders the bricks utterly impervious to rain; it endures as long as paint, and the expense is a mere trifle.

WHITENESS THAT WILL NOT RUB OFF.—Slake the lime in the usual way. Mix one gill of flour with a little cold water, taking care to beat out all the lumps; then pour on it boiling water enough to thicken it to the consistency of common starch when boiled for use. Pour it, while hot, into a bucket of the slaked lime, and add one of whitening. Stir all well together. A little "blue water," made by squeezing the indigo bag, or a little pulverized indigo mixed with water, improves it.

DIAMOND CEMENT FOR CHINA AND GLASS.—Soak isinglass in water till it is soft, then dissolve it in proof spirits. Add to this a little gum-ammoniac or galbanum and mastic, dissolved in as little alcohol as possible. Shake well and put in a bottle with a good cork. When used it must be liquified by placing the hottle in warm water; apply it to the broken edges with a camel-hair brush, or in the absence of that, the tip of a feather. This cement will resist moisture.

How to Make Good Soups.

To make the best soups, use lean, juicy, fresh-killed meat; beef, veal, mutton, kid, lamb, or venison. Proportion the water to the meat in preparing the broth. To one pound of meat, add three pints of water, and reduce it by boiling, to one quart. Place the soup-pot over a slow fire, which will make the water hot without causing it to boil, for at least half an hour. *Gentle stewing is best.* If the meat used is a leg or shin of beef, crack the bone in several places. To this, any trimmings of poultry may be added; a few slices of lean ham, if a large quantity of soup is to be made. The vessel in which soup is made, should have a close, well-fitting cover, which should be carefully kept in its place during the whole process. This will not only preserve much of the nutritive part of the juices of the meat, by preventing evaporation, but prevent smoke getting in, which would spoil the flavor of the broth. As the water begins to boil, a quantity of scum will rise to the top, which must be frequently and carefully removed. When the water looks clear, the vegetables and salt may be put in. After this is done, place the pot, *carefully covered*, where it will boil gently. It will require from three to four hours to prepare soup properly, unless the broth has been made the previous day. When convenient, it is a good plan to boil the broth the day before it is to be used; when it cools, the fat can be more easily removed, and if a variety of dishes is to be prepared, this arrangement will lessen the labor of the cook. The broth will keep perfectly well, but must not stand in a metallic vessel. Keep some spare broth in case your soup boils too thick. If this is not done, and more fluid is required, use *boiling water*. Cold water will injure the quality of the soup. When wine is used, it should never be put in more than ten or fifteen minutes before sending to the table. Spices and pepper should be tied in a thin muslin cloth, so as to be easily taken out. All bones, gristle, and pieces of fat should be carefully removed before serving. As much of the meat as is needed, should be cut in small pieces and put in the tureen before the soup is taken up. The broth being well prepared, the difference in soups depends mainly upon the seasoning. Says an old English writer, from whom I have already quoted: "The art of composing a rich soup is, so to proportion the several ingredients one to another, that no particular taste be stronger than the rest; but to produce such a fine, harmonious relish, that the whole is delightful."

KITCHEN UTENSILS.—That the duties of the cook may be properly performed, there must be suitable apparatus to work with. All other trades require nice tools suited to the business to be done, and why should not the claims of this important functionary be admitted. In many kitchens—perhaps the majority—an insufficient number of utensils is furnished, and those without any regard to adaptation, with the unreasonable expectation that, whatever the variety to be served up, all shall be performed in a skillful manner. A liberal supply of cooking utensils is good economy; it saves both time and labor. It is *wise* management to curtail expenses in fitting up the parlor, in order to spend in fitting up the kitchen. An old English writer upon the subject has humanely observed: "There is real enjoyment in a well-cooked meal; and as the practice of cooking is attended with so many discouraging difficulties, so many disgusting and disagreeable circumstances, we ought to have some regard for those who encounter them to procure us pleasure, and to reward their services by rendering their situation in every way as comfortable and agreeable as possible."

THE GRAVE.—It hurries every error, covers every defect, extinguishes every resentment. From its peaceful bosom spring none but fond regrets and tender recollections. Who can look down upon the grave of an enemy and not feel a compunctious throb that he should have warred with the poor handful of dust that lies moulding before him?

DANIEL WEBSTER said, "If we work upon marble, it will perish; if we work upon brass, time will efface it; if we rear temples, they will crumble into dust; but if we work upon immortal minds—if we imbue them with right principles, with the just fear of God and love of our fellow-men, we engrave on these tablets something that will brighten for all eternity."

There is a man in Mason, New Hampshire, who hasn't lived in his house since his wife died there, ten years ago. His furniture remains unmoved and undusted. He hoards out where they will keep him for \$2 a week.

Life Thoughts.

THE greatest glory is not in never falling, but in rising every time we fall.

Be true to God and yourself, and you will be true to mankind.

Those who blow the coals of others' strife may chance to have the sparks fly in their own faces.

God writes his gospel, not in the Bible alone, but on trees and flowers and clouds and stars.

The aim of an honest man's life is not the happiness which serves only himself, but the virtue which is useful to others.

Wisdom does not show itself so much in precept as in life—in a firmness of mind and a mastery of appetite. It teaches us to do, as well as to talk, and to make our words and actions all of a color.

In the voyage of life, we should imitate the ancient mariners, who, without losing sight of the earth, trusted to the heavenly signs for their guidance.

Do daily and hourly your nearest duty. Never mind whether it be known or acknowledged; in the blithesome "sometime" it will have its reward.

There are some conditions of the mind in which physis should be thrown to the dogs. Sympathy and love will make the pulse beat lower and the heart thro right-ly.

The Life Struggle.

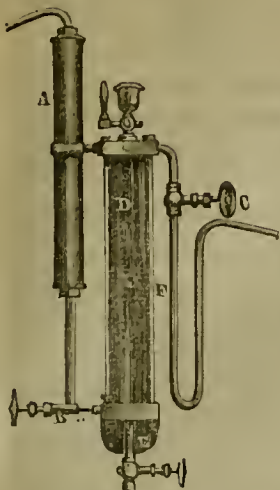
The world knows no victory which can at all be compared with victory over our own passions. The struggle of life is between the flesh and the spirit, and one or the other finally gains the ascendancy. Every day, and every hour of the Christian's life, is this contest going on, and sad it is to think how often it is that victory is declared in favor of this earth, with its sinful passions. The Apostle Paul, after having labored long and earnestly in his Lord's service—after having done more for the spread of the truth than all the other Apostles, still felt that he was a human being, liable, at any time, through the weakness of the flesh, to lose all. "I keep under my body," says he, "and bring it to subjection, lest, after I have preached the Gospel unto others, I, myself, should be cast away." If this watchfulness was needed on the part of this aged and long-tried servant of God, what care and diligence ought we to exercise, lest we should lose all in an unguarded hour? Our pathway through life thickly set with snares for our feet. The seductions of passion, the allurements of vice, things to arouse our anger and stir up our heart's feelings, await us at every turn of life's devious ways, and blessed indeed is that man, or that woman, that meets them all without harm.

ETERNITY.—If nature plant in an animal a desire, it is the proof that in the constitution of that animal is the means of its gratification. Is there not a longing in the soul for the spiritual existence to the boundless extent which thought requires? And what does that point to? Where is its gratification? Where but in the new and endless life? If there is a desire to live in a larger sphere, with more knowledge and power, it is because life and knowledge are good for us, and we are natural repositories of these things. This is no speculation, but the most practical of doctrines.—*Emerson.*

LADY MORGAN'S IDEAS ABOUT YOUNG LADIES.—In a *te-te-a-te* conversation on the subject of some young ladies who had been suddenly bereft of fortune, Lady Morgan said with an emphatic wave of her dear old green fan, "They do everything that is fashionable—*imperfect*; their singing, drawing, and dancing, and languages, amount to nothing. They were educated to marry, and had there been time they might have goue off *with*, and hereafter *from*, husbands. They cannot earn their own salt; they do not even know how to dress themselves. I desire to give every girl, no matter her rank, a trade—a *profession*, if the word pleases you better; cultivate what is necessary in the position she is born to; cultivate all things in moderation, but one thing to *perfection*, no matter what it is, for which she has a talent—drawing, music, embroidery, housekeeping even; give her a staff to lay hold of, let her feel this will carry me through life without dependence."—*The Friends' Tour and Adventures of Lady Morgan.*

INFINITE toil would not enable you to sweep away a mist, but by ascending a little you may often look over it altogether. So it is with moral improvements; we wrestle with a vicious habit, or with a slanderous report, which would have no hold upon us if we ascended into a higher moral atmosphere.

GARRATT'S CONDENSING LUBRICATOR.



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

Feb 18-47

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Hammers, Sledge, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools. 13 and 15 Fremont street, near Market, San Francisco 10v14qr

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth. W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 percent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

R. H. McDONALD & CO.,

WHOLESALE

DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts, Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are

Particularly Requested

to give us a call and examine our stock and prices. R. H. McDONALD & CO., 1v22-3mins S. W. Cor. Market and First streets.

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET, SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN, and are thereby enabled to manufacture MACHINERY, CASTINGS & BOILERS AT EASTERN PRICES, And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

PAPER-BOATS.

Have been rowed by the winners of NINETEEN races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada, besides much other information of interest to oarsman. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address WATERS, BALCH & CO., 23v24-3m 303 River Street, Troy, N. Y.

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansone St.

GEO. L. FAULKNER, Agent.

1v22-3mins

Eastern Advertisements.

EVERETT HOUSE,

Cor. Clark & Van Buren Streets, CHICAGO.

This Hotel is centrally located,

Only Three Minutes walk from the

Court House, Post Office, and various places of amuse- ment.

The Chicago, Rock Island and Pacific, and the Michigan Southern Rail

Road Passenger Depots,

are within one block. The house is NEATLY AND ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City, with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors. 2v22-4elmins



Over 300 Actual Fires put out with it. More than \$4,000,000.00 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private residences, school houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record." F. W. FARWELL, Sec'y, 3v22-3ms 122 Washington St., Chicago.

LEONARD'S

Patent Vapor Jet Burner and Hand Lamps.



No. 2.

Also, Portable Gas Burners and FIXTURES.

County and State Rights for sale.

Send for Circulars.

Manufactured and for sale by

D. LEONARD & CO.,

109 Calhoun Place, Chicago, Illinois. 3v22-3ms



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,

costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late Improvements.

Send for prices and information. Address

C. F. HENDRIE, Pres't, R. J. CORY, Sec'y & Treas.

1v22-3m4es Council Bluffs Iowa.

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Successors to

Wm. J. Young & Co.,

Wm. J. Young & Son,

Wm. J. Young.



MATHEMATICAL

AND

ENGINEERING

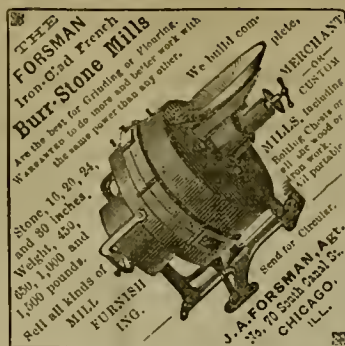
INSTRUMENT MANUFACTURERS

At their old location

No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand.

Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burtis Solar Compass. 4v-22



Send for Circular.

3v22-3ms

Established 1843.

LOUIS ESPENSCHIED, WAGON MANUFACTORY,

No. 1815 Broadway, St. Louis, Missouri.

3v22-6ms

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN

China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroloxine, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

Dr. J. H. PAINE, Dentist, Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 509 MONTGOMERY STREET. 6v20-3m

GILES H. GRAY.

JAMES M. HAYEN.

GRAY & HAVEN,

ATTORNEYS AND COUNSELLORS AT LAW, n Building of Pacific Insurance Co., N. E. corner California St. Leidesdorf streets. 27v16 SAN FRANCISCO.

JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1012 Mason St., near Green, will be promptly attended to. 24v21-3m

JOHN ROAOH, Optician,

Has removed from 522 Montgomery street to 540 Washington street, East of Montgomery. Surveying Instruments made, repaired and adjusted 22v17-3m

Farmers and Mechanics

BANK OF SAVINGS.

No. 235 Sansone Street.

interest paid on Deposits. Money Loaned on Real Estate

H. DUTTON, President. OEO. M. CONDEE Cashier. 19v16-3m

THE EYE! THE EAR!

DR. D. E. DUDLEY,

Surgeon, Oculist and Aurist,

Has removed to his new rooms, 24 Post street between Montgomery and Kearney. 3v22-3ms

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,

BOOK BINDERS,

Paper Rulers and Blank Book Manufacturers

505 Clay street, (southwest cor. Sansone), 15v12-3m SAN FRANCISCO.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

SAN FRANCISCO

CORDAGE COMPANY.

Msnia Rope of all sizes. Also, Bale Rope and Whse Line constantly on hand. Mining Ropes of any size and length manufactured to order. 26

TUBBS & CO., Agents, 611 and 613 Front street.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Oarratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts., 6v14tf SAN FRANCISCO.

VAN NOSTRAND'S

Electric Engineering Magazine,

Commenced January, 1869.

Consists of articles selected and matter condensed from all the Engineering Scientific Serial publications of Europe and America.

The third volume of this Magazine is completed by the issue for December.

The growing success during the past two years demonstrates the correctness of the theory upon which the enterprise was founded. Communications from many sources prove that the Magazine has met a widespread want among the members of the engineering profession.

A summary of scientific intelligence, selected and sifted from the great list of American and European scientific journals is at present afforded by no other means than through the pages of this Magazine.

In the next volume, beginning with the January number, we shall commence some important improvements. Each number of the Magazine will hereafter contain something of value relating to each of the great departments of engineering labor.

More space than heretofore will be devoted to short discussions or elucidation of important formulae, especially such as have proved valuable in the practice of working engineers; our facilities for affording such items are extensive and rapidly increasing.

The progress of great engineering works in this country will be duly chronicled.

Selected and condensed articles, with their illustrations, from English, French, German, Austrian, and American scientific periodicals, will contribute to make this Magazine more than ever valuable to the engineering profession, and will afford a compilation without which the library of the working engineer will be incomplete.

112 Pages, Large 8vo. Illustrated Monthly.

Price \$5.00 a year in advance, single copies fifty cents.

Notice to New Subscribers.

Persons commencing their subscriptions with the 3d year (January, 1871), and who are desirous of possessing the work from its commencement, will be supplied with Volumes I., II., and III., neatly bound in cloth, for \$10.00, sent free by mail on receipt of price.

Notice to Clubs.

An extra copy will be supplied gratis to every club of five subscribers at \$5 each, sent in one remittance.

D. VAN NOSTRAND.

Publisher, Importer and Bookseller, 23 Murray and 27 Warren street, NEW YORK. 5v23-4t

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

ash Capital, \$300,000

OLD COIN

OFFICE, 436 CALIFORNIA STREET.

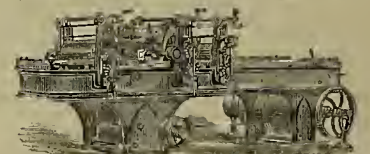
Fire and Marine Insurance.

All Losses paid in U. S. Old Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE, 112 and 114 California street, San Francisco.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

MILLER & HALEY'S MILLS,

BERRY STREET,

Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers. 19v21-3m MILLER & HALEY.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco. 2v11-4t

New Publications.

HAND BOOK OF MINERAL ANALYSIS.—By Frederick Wohler, Professor of Chemistry in the University of Göttingen. Edited by Henry B. Nason, Professor of Chemistry in the Rensselaer Polytechnic Institute, Troy, New York. Philadelphia: Henry Carey Baird, Industrial Publisher, 406 Walnut street, 1871. 8vo. pp. 308. Price \$3. Sent by mail free of postage to any part of the U. S.

This is a collection of examples, for illustrating the most important processes for determining the composition of mineral substances, designed chiefly for use in the laboratory. It is well known to us (in the original German) as a most excellent book, and while we have been unable to compare the translation with the original, yet we can readily believe that it is good, especially as the translator has closely adhered, he says, to Wöhler's form. While the work is not intended to take the place of larger and more complete works on analysis, it is still exceedingly valuable in the laboratory. Our own copy having been misplaced somewhere at the East, we are glad to have it replaced by this translation, especially as we have not been able to get one here. We are pleased to see that the publisher has put the price quite low, for with many scientific publications in our country, the cost demands well filled pockets, if one desires keeping up a decent library.

TREATMENT OF ORES, by Dry Crushing and Concentration, and subsequent reduction at large Smelting Works, with description of Jacob's Union Ore Concentrator. By E. M. Barnum and H. S. Jacobs.

Mr. Jacobs, we are told, was the first operator of the Krom Concentrator at Georgetown, Colorado. He has had considerable experience in dry concentration (with air), and many of his remarks are true as to the advantages of such an operation, can it be performed successfully. Of the practical working of air concentrators, we have no definite data except those given by the Colorado Herald concerning Krom's machine, and tables given in this pamphlet. The Colorado Register doubts the accuracy of the gain here assumed. This same paper hints that the "Union" may be Krom's concentrator with some alteration. The pamphlet is supposed (from the title) to give a description of the machine, but nothing of the kind is given, only the process of manipulation; hence we can say nothing definitely on this point.

THE OVERSHADOWING QUESTION.—We are indebted to Hon George W. Julian for a copy of this speech, which concerns a matter of the greatest moment to our coast. Mr. Julian here treats of land matters, and takes strong ground against the "subservience to individual and corporate wealth and the practical unfriendliness to the producing classes" of the land policy of the Government. The pamphlet deserves a wide circulation among thinking men.

DEVELOPING OUR RESOURCES.—Hon. Mr. Axtell sends us copies of his speeches, delivered in the House of Representatives on January 27th and 28th. Mr. Axtell dwells on the resources of our western country and the difficulties in developing them. He advises government aid, and in this way: "I say extend your lines of survey over it at once, that each man may clearly know the boundary of his land; give one half of it in alternate sections to any responsible railroad company who will build a good road, restricting them in their charters to reasonable fares, to be regulated from time to time by Congress; give liberally in alternate sections to all companies who will construct reservoirs and canals, hindering them in their charters to sell the water at reasonable prices, without favor or discrimination; and sell the balance of the land to the highest bidders for cash, and thus encourage settlement and development, redeem this land from desolation, and give it away to settlement."

THE CHORPENNING CASE.—Hon. John Cessna, of Pennsylvania, sends us a copy of his remarks, made before Congress, in explanation of his action in the case of George Chorpennig.

CIVIL SERVICE REFORM.—We are indebted to Senator Casserly for a copy of Hon. Carl Schurz's speech on this subject. Mr. Schurz makes some excellent points in favor of a civil service reform, which, in our opinion, is one of the things most needed in our government. The speech is well worth reading.

INCOME TAX.—Senator Cole sends us a copy of his speech, advocating the repeal of the income tax, showing that the tax was an outgrowth of the war, was imposed to meet an extraordinary emergency, was intended only as a measure of temporary relief, that it now works unfairly and injuriously, and ought to be abolished.

The Rainy Seasons for Twenty-one Years.

The following table will, we think, be found valuable as a record, and as a criterion, to a certain extent, by which to judge of the future. While it is very different to give anything in the nature of a prediction, yet we can form a tolerably correct idea of the probabilities in many cases. Indeed, all human knowledge is made up of observations and experience of the past, and these observations and experiences are the only basis we have upon which to form a judgment of the future—as well as to the weather as to other matters.

Table with 2 columns: MONTHS (January to December) and RAIN (inches). Rows show data for years 1850-1870. Includes a 'Total' row at the bottom.

It will be seen by the above table, that there is a general correspondence between the amount of rain falling before the first of January of each year, and the whole amount for the season of the corresponding years. For instance, in the year 1852-3, the rainfall before the first of January was 19.413 inches, and the whole amount for the season was 35.549 inches. On the other hand, in the year 1856-7, the fall before the first of January was 3.236 inches, and the whole fall for the season was only 10.443 inches; and in 1863-4 the fall before the first of January was 3.308 inches, and that of the season 7.868.

It will also be observed that there has been but one year in the whole time, covered by the above table, in which the rainfall before the first of January was less than that of the present season to that time. That year, 1850-1, was the most remarkable we have ever had. Before the first of January there were but two sprinkles, and for the whole season but 4.710 inches. This season we had before January first but 1.575 inches, which would suggest a dry season.

We selected Sacramento as the location for our observation, for the reason that as a general thing the rainfall at that point is a better guide for that of the larger portion of the interior of the State than any point either further north or south. We would remark, however, that the rain the present season seems to have been more abundant in many other portions of the State than at Sacramento.

Artesian Wells and their Value.

Our correspondent "E. W." writes from San Felipe, Santa Clara County, under date of Feb. 8th, that the day before he arrived a gentleman of that place struck a splendid flow of water in an artesian well which he had sunk for the purpose of irrigation.

The water was spouting three feet above the 7-inch pipe when I saw it. The owner calculated that he had a sufficient stream to irrigate 500 acres of land. A former owner of this land had already sunk two wells; the first caved in, carrying with it two large trees standing on the brink, and it now forms a deep hole some 70 or 80 feet across, but the water does not seem to rise any higher than a certain point. The second one was worse still, for the rush of water forced out the pipe and then the sides caved; but the water continued to force its way up in such quantities as to threaten to flood the immediate neighborhood, and it cost about \$1,500 to stop it; which was done by means of bundles of wood and wheat sacks filled with sand. I don't know enough about this subject to say whether these accidents were caused by carelessness or the nature of the soil; but I can see the immense value a well of this character is to its owner (provided it works well), rendering him almost independent of rain, at a comparatively trifling expense. This water was struck at the depth of 112 feet; and another fine well with a flow two feet above the pipe situated about two miles from this, was reached in about 80 feet; the latter would irrigate 200 acres easily, at a very trifling cost of labor. Every freehold farmer ought to have one. If he can get a good one, it will increase the value of the land it is capable of irrigating at least \$10 per acre, probably far more. Even should he not get a good stream in one well, it is no reason why he should not in another, for they vary much in quantity, even when close together.

Artesian Wells in Pajaro Valley.

The Pajaronian, of February 9th, says:—"Within the last two weeks persons in different parts of the Pajaro Valley have been boring for water. Mr. Knowles, who resides near the beach, lately raised money by subscription for an artesian well at the school house near his place, and we learned yesterday that the work was completed a few days since, flowing water of good quality having been struck at the depth of 116 feet.

Mr. George Pardee has commenced a well of the same kind on his ranch near the beach.

Messrs. Blackburn & Waters are sinking a well with every prospect of reaching flowing water in a few days. At the last accounts they were down over 100 feet. They were unfortunately detained in their work owing to defective pipe, and were obliged to take up 90 feet of pipe. At present the work is progressing satisfactorily. Artesian wells are being bored all over the State, and no great length of time will elapse before the windmills will be superseded."

A NEWSPAPER CHANGE.—The Visalia Delta has been purchased by Mr. E. M. Dewey, formerly of the Mountain Messenger, Downieville. Mr. Dewey has reduced the subscription price of the Delta to \$4 per year (in advance), and will improve its local columns and job printing department, making it an excellent representative of that promising section of our agricultural districts.

THE SCIENTIFIC PRESS. FOR 1871.

WILL BE SPECIALLY DEVOTED TO Mining, Mechanic Arts, Inventions, and Home Industries of the Pacific States.

PRINTED ON NEW TYPE,

AND ITS READING COLUMNS INCREASED,

AND OTHERWISE IMPROVED IN VALUE.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement.

CLUBS AT \$3 PER ANNUM

For each name, will be received when ten or more persons co-operate in sending us their cash in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the Press until they read it. Use your copy of the paper to induce others to subscribe, (if you like it yourself), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & CO., Publishers.

Meteorological Observations

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D. Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N., Long. 121° 29' 44" W. Height at Levee above mean low tide, at San Francisco, 74 feet. Height of lower surface of mercury, 94 feet. The amount of cloudiness is designated by figures, 0 being entire clearness; 5, half cloudiness; 10, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from three daily readings at 7 A. M., 2 P. M., and 9 P. M., in conformity with the arrangements of the Smithsonian Institution.

Table with 12 columns: 1871. MONTH AND DAY, DAILY MEANS OF CORRECTED, WIND, and other meteorological data. Rows show data for February 1871.

*Thermometograph. +Rain.

REMARKS.—The expectations based upon the stormy weather of the week have been disappointed, and we have an installment of only 1.46 inches of rain to be added to the previous fall of four inches. Unless the spring rains prove more copious, we apprehend that what has already fallen will soon be evaporated by the advancing warm season, as there is but little water stored away in the sub-soil to meet the demands of the growing vegetation.

CENTRAL PACIFIC RAILROAD.

Table with 4 columns: Pass'ger, Express, Train, and Pass'ger. Rows show train schedules for January 22, 1871, including destinations like San Francisco, Oakland, and Sacramento.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6 50 and 11 30 a. m. D 10 20 and 11 10 a. m. 12 00, 1 50, D 3 00, 4 00, 5 15 and E 11 30 p. m.
LEAVE BROOKLYN, B 5 15, B 6 30, 7 40, 8 50 and 10 00 a. m., 1 30, 2 40 4 55 and 6 25 p. m.
LEAVE OAKLAND, B 5 25, B 6 40, 7 50, 9 00, 10 10, 11 00 and 11 30 a. m., 1 40, 2 50, 3 50, 4 55 and 6 35 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7 20, B 9 00, B 9 30 and E 11 30 a. m., 1 30, 4 00 and 5 30 p. m.
LEAVE HAYWARD, B 4 15, B 7 00, E 8 30, B 9 00 and E 11 00 a. m., 1 25, 2 50, 3 50, 4 55 and 6 25 p. m.
LEAVE ALAMEDA, B 5 15, B 7 35, E 9 05, B 9 35 and E 11 35 a. m., 1 25 and 4 05 p. m.
B Sundays excepted. D To Oakland only. E Sundays only. C To Fruit Valley only.

T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt. A. N. TOWNE, Gen'l Supt.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we don't think any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage. Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate, Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 62-13

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v13-6m B. F. HOWLAND

BLOCK TIN and SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 473 Brannan street. 24v15-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Sonora Hotel, T. BRODIGAN, Proprietor. Best Meals and Beds in Sonora, Cal. fe25-3m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Cransher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.

Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors: Wm. Alvord, Lloyd Tevis, Joseph Moore, John N. Risdon,
S. F. Butterworth, Wm. Norris, Chas. E. McLane.

WM. H. TAYLOR.....President.
JOSEPH A. DORR.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Quabbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities.

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market Street.

Circulars sent on application. 16v21-tf

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

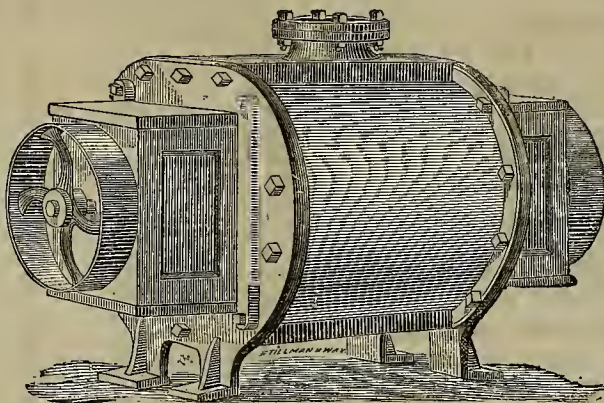
J. H. WEED, V. KINGWELL

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.



Patented Nov. 1st, 1864; July
21, 1866; and Oct. 9, 1866.

ADAPTED
FOR
Smelting,

Foundry,

Mining

and

Steamships.



REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

v16-3m

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

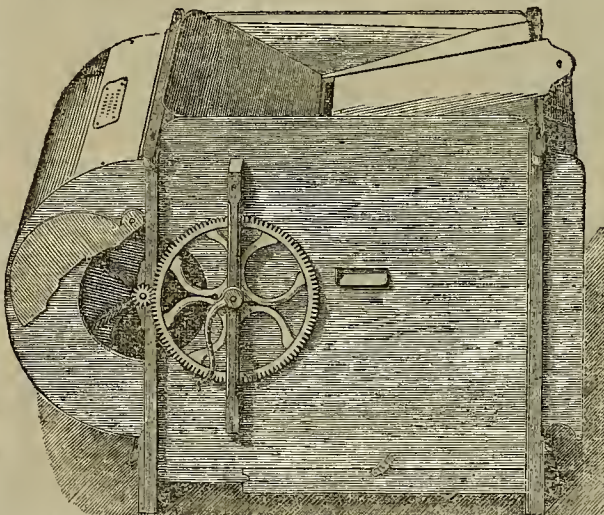
NOVELTY MILL AND GRAIN SEPARATOR.

THE undersigned having purchased of the Pa-
tentees, WILTS & SWIFT
of Hudson, Michigan, their right to this mill
Patented June 22d, 1869
for California, Oregon,
Washington Territory,
Montana, Utah, New
Mexico and Arizona, wish-
es to call the attention of
FARMERS, MILLERS AND
GRAIN DEALERS to one of
THE GREATEST IMPROVEMENTS OF THE
AGE for cleaning and sep-
arating grain. While it
combines all the essential
qualities of a first-class
FANNING MILL, it also far
exceeds anything that has
ever been invented for the
separation of grain. It has
been thoroughly tested on
all the different kinds of
mixed grain, separating all
the different seeds in almost
a magical manner, placing
them in their different com-
partments in the mill arranged
for their reception, at the
same time taking out all
the Mustard, Grass Seed,
Barley and Oats, and mak-
ing two distinct quali-
ties of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEEN WHEAT, and all the
small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this
Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the
farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was
exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and
bore away the palm over some thirty other different mills from all parts of the United States, including the fa-
mous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, de-
clare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced
on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the
State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2
Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working
of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State
Right for sale on favorable terms. For further particulars apply to

v16-3m

R. STONE, 423 Battery Street, San Francisco.



THE

CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

DOUBLE PLUNGER STEAM PUMPS,

FOR DRAINING MINES.

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.



MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

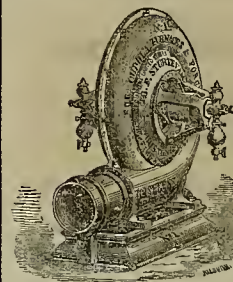
Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND
PUNCHES. 3v21



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the differ-
ent sizes always in
store. 4v22

STEAM JET PUMP.

Blakelock & Williams' Patent.—For
Water, Oils, Acids, Etc.

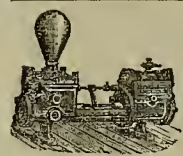


The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also highly
recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.

AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARGION, Stockton. Can be seen at
McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-tf



THE ANGEL'S QUARTZ
Mine Shaft is over 200 Feet
Deep, and is kept free from
water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,

112 California st., San Fran-
cisco. 4v22

For
Steam Pipes Hair Felting
& Boilers

Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

FROM THE WEED
Sewing Ma-
chines—the
WHOLE WORLD
being judges as they
are the BEST, so also
are the BEST! Why?
Because the WEED

Machines TO
work easier,
simpler, and with more
variety. Buy the
LATEST always. Call
and see S. E. HARR, 299
Kearns St. S. F., Ast.

(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.

900 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of refer-
ence among

Companies,
Manufacturers,
Engineers.

Patentees, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be
crossed to the Compiler,

JAMES R. SMEDBERG,

Consulting Engineer S. F. Gas Co.,

SAN FRANCISCO, CAL.

20v21-tf

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Train	Express Train	Passenger Train	Express Train
Sundays excepted	Daily	Sundays excepted	Daily
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:42 P.M.
5:24 P.M.	9:20 A.M.	San Jose	5:40 P.M.
6:06 P.M.	10:00 A.M.	Stockton	5:35 P.M.
6:48 P.M.	10:40 A.M.	Sacramento	5:30 P.M.
7:30 P.M.	11:20 A.M.	Marysville	5:25 P.M.
8:12 P.M.	12:00 P.M.	Sacramento	5:20 P.M.
8:54 P.M.	12:40 P.M.	San Francisco	5:15 P.M.
9:36 P.M.	1:20 P.M.	Oakland	5:10 P.M.
10:18 P.M.	2:00 P.M.	San Jose	5:05 P.M.
11:00 P.M.	2:40 P.M.	Stockton	5:00 P.M.
11:42 P.M.	3:20 P.M.	Sacramento	4:55 P.M.
12:24 P.M.	4:00 P.M.	Marysville	4:50 P.M.
1:06 P.M.	4:40 P.M.	Sacramento	4:45 P.M.
1:48 P.M.	5:20 P.M.	San Francisco	4:40 P.M.
2:30 P.M.	6:00 P.M.	Oakland	4:35 P.M.
3:12 P.M.	6:40 P.M.	San Jose	4:30 P.M.
3:54 P.M.	7:20 P.M.	Stockton	4:25 P.M.
4:36 P.M.	8:00 P.M.	Sacramento	4:20 P.M.
5:18 P.M.	8:40 P.M.	Marysville	4:15 P.M.
6:00 P.M.	9:20 P.M.	Sacramento	4:10 P.M.
6:42 P.M.	10:00 P.M.	San Francisco	4:05 P.M.
7:24 P.M.	10:40 P.M.	Oakland	4:00 P.M.
8:06 P.M.	11:20 P.M.	San Jose	3:55 P.M.
8:48 P.M.	12:00 P.M.	Stockton	3:50 P.M.
9:30 P.M.	12:40 P.M.	Sacramento	3:45 P.M.
10:12 P.M.	1:20 P.M.	Marysville	3:40 P.M.
10:54 P.M.	2:00 P.M.	Sacramento	3:35 P.M.
11:36 P.M.	2:40 P.M.	San Francisco	3:30 P.M.
12:18 P.M.	3:20 P.M.	Oakland	3:25 P.M.
1:00 P.M.	4:00 P.M.	San Jose	3:20 P.M.
1:42 P.M.	4:40 P.M.	Stockton	3:15 P.M.
2:24 P.M.	5:20 P.M.	Sacramento	3:10 P.M.
3:06 P.M.	6:00 P.M.	Marysville	3:05 P.M.
3:48 P.M.	6:40 P.M.	Sacramento	3:00 P.M.
4:30 P.M.	7:20 P.M.	San Francisco	2:55 P.M.
5:12 P.M.	8:00 P.M.	Oakland	2:50 P.M.
5:54 P.M.	8:40 P.M.	San Jose	2:45 P.M.
6:36 P.M.	9:20 P.M.	Stockton	2:40 P.M.
7:18 P.M.	10:00 P.M.	Sacramento	2:35 P.M.
8:00 P.M.	10:40 P.M.	Marysville	2:30 P.M.
8:42 P.M.	11:20 P.M.	Sacramento	2:25 P.M.
9:24 P.M.	12:00 P.M.	San Francisco	2:20 P.M.
10:06 P.M.	12:40 P.M.	Oakland	2:15 P.M.
10:48 P.M.	1:20 P.M.	San Jose	2:10 P.M.
11:30 P.M.	2:00 P.M.	Stockton	2:05 P.M.
12:12 P.M.	2:40 P.M.	Sacramento	2:00 P.M.
12:54 P.M.	3:20 P.M.	Marysville	1:55 P.M.
1:36 P.M.	4:00 P.M.	Sacramento	1:50 P.M.
2:18 P.M.	4:40 P.M.	San Francisco	1:45 P.M.
3:00 P.M.	5:20 P.M.	Oakland	1:40 P.M.
3:42 P.M.	6:00 P.M.	San Jose	1:35 P.M.
4:24 P.M.	6:40 P.M.	Stockton	1:30 P.M.
5:06 P.M.	7:20 P.M.	Sacramento	1:25 P.M.
5:48 P.M.	8:00 P.M.	Marysville	1:20 P.M.
6:30 P.M.	8:40 P.M.	Sacramento	1:15 P.M.
7:12 P.M.	9:20 P.M.	San Francisco	1:10 P.M.
7:54 P.M.	10:00 P.M.	Oakland	1:05 P.M.
8:36 P.M.	10:40 P.M.	San Jose	1:00 P.M.
9:18 P.M.	11:20 P.M.	Stockton	9:55 A.M.
10:00 P.M.	12:00 P.M.	Sacramento	9:50 A.M.
10:42 P.M.	12:40 P.M.	Marysville	9:45 A.M.
11:24 P.M.	1:20 P.M.	Sacramento	9:40 A.M.
12:06 P.M.	2:00 P.M.	San Francisco	9:35 A.M.
12:48 P.M.	2:40 P.M.	Oakland	9:30 A.M.
1:30 P.M.	3:20 P.M.	San Jose	9:25 A.M.
2:12 P.M.	4:00 P.M.	Stockton	9:20 A.M.
2:54 P.M.	4:40 P.M.	Sacramento	9:15 A.M.
3:36 P.M.	5:20 P.M.	Marysville	9:10 A.M.
4:18 P.M.	6:00 P.M.	Sacramento	9:05 A.M.
5:00 P.M.	6:40 P.M.	San Francisco	9:00 A.M.
5:42 P.M.	7:20 P.M.	Oakland	8:55 A.M.
6:24 P.M.	8:00 P.M.	San Jose	8:50 A.M.
7:06 P.M.	8:40 P.M.	Stockton	8:45 A.M.
7:48 P.M.	9:20 P.M.	Sacramento	8:40 A.M.
8:30 P.M.	10:00 P.M.	Marysville	8:35 A.M.
9:12 P.M.	10:40 P.M.	Sacramento	8:30 A.M.
9:54 P.M.	11:20 P.M.	San Francisco	8:25 A.M.
10:36 P.M.	12:00 P.M.	Oakland	8:20 A.M.
11:18 P.M.	12:40 P.M.	San Jose	8:15 A.M.
12:00 P.M.	1:20 P.M.	Stockton	8:10 A.M.
12:42 P.M.	2:00 P.M.	Sacramento	8:05 A.M.
1:24 P.M.	2:40 P.M.	Marysville	8:00 A.M.
2:06 P.M.	3:20 P.M.	Sacramento	7:55 A.M.
2:48 P.M.	4:00 P.M.	San Francisco	7:50 A.M.
3:30 P.M.	4:40 P.M.	Oakland	7:45 A.M.
4:12 P.M.	5:20 P.M.	San Jose	7:40 A.M.
4:54 P.M.	6:00 P.M.	Stockton	7:35 A.M.
5:36 P.M.	6:40 P.M.	Sacramento	7:30 A.M.
6:18 P.M.	7:20 P.M.	Marysville	7:25 A.M.
7:00 P.M.	8:00 P.M.	Sacramento	7:20 A.M.
7:42 P.M.	8:40 P.M.	San Francisco	7:15 A.M.
8:24 P.M.	9:20 P.M.	Oakland	7:10 A.M.
9:06 P.M.	10:00 P.M.	San Jose	7:05 A.M.
9:48 P.M.	10:40 P.M.	Stockton	7:00 A.M.
10:30 P.M.	11:20 P.M.	Sacramento	6:55 A.M.
11:12 P.M.	12:00 P.M.	Marysville	6:50 A.M.
11:54 P.M.	12:40 P.M.	Sacramento	6:45 A.M.
12:36 P.M.	1:20 P.M.	San Francisco	6:40 A.M.
1:18 P.M.	2:00 P.M.	Oakland	6:35 A.M.
2:00 P.M.	2:40 P.M.	San Jose	6:30 A.M.
2:42 P.M.	3:20 P.M.	Stockton	6:25 A.M.
3:24 P.M.	4:00 P.M.	Sacramento	6:20 A.M.
4:06 P.M.	4:40 P.M.	Marysville	6:15 A.M.
4:48 P.M.	5:20 P.M.	Sacramento	6:10 A.M.
5:30 P.M.	6:00 P.M.	San Francisco	6:05 A.M.
6:12 P.M.	6:40 P.M.	Oakland	6:00 A.M.
6:54 P.M.	7:20 P.M.	San Jose	5:55 A.M.
7:36 P.M.	8:00 P.M.	Stockton	5:50 A.M.
8:18 P.M.	8:40 P.M.	Sacramento	5:45 A.M.
9:00 P.M.	9:20 P.M.	Marysville	5:40 A.M.
9:42 P.M.	10:00 P.M.	Sacramento	5:35 A.M.
10:24 P.M.	10:40 P.M.	San Francisco	5:30 A.M.
11:06 P.M.	11:20 P.M.	Oakland	5:25 A.M.
11:48 P.M.	12:00 P.M.	San Jose	5:20 A.M.
12:30 P.M.	12:40 P.M.	Stockton	5:15 A.M.
1:12 P.M.	1:20 P.M.	Sacramento	5:10 A.M.
1:54 P.M.	2:00 P.M.	Marysville	5:05 A.M.
2:36 P.M.	2:40 P.M.	Sacramento	5:00 A.M.
3:18 P.M.	3:20 P.M.	San Francisco	4:55 A.M.
4:00 P.M.	4:00 P.M.	Oakland	4:50 A.M.
4:42 P.M.	4:40 P.M.	San Jose	4:45 A.M.
5:24 P.M.	5:20 P.M.	Stockton	4:40 A.M.
6:06 P.M.	6:00 P.M.	Sacramento	4:35 A.M.
6:48 P.M.	6:40 P.M.	Marysville	4:30 A.M.
7:30 P.M.	7:20 P.M.	Sacramento	4:25 A.M.
8:12 P.M.	8:00 P.M.	San Francisco	4:20 A.M.
8:54 P.M.	8:40 P.M.	Oakland	4:15 A.M.
9:36 P.M.	9:20 P.M.	San Jose	4:10 A.M.
10:18 P.M.	10:00 P.M.	Stockton	4:05 A.M.
11:00 P.M.	10:40 P.M.	Sacramento	4:00 A.M.
11:42 P.M.	11:20 P.M.	Marysville	3:55 A.M.
12:24 P.M.	12:00 P.M.	Sacramento	3:50 A.M.
1:06 P.M.	12:40 P.M.	San Francisco	3:45 A.M.
1:48 P.M.	1:20 P.M.	Oakland	3:40 A.M.
2:30 P.M.	2:00 P.M.	San Jose	3:35 A.M.
3:12 P.M.	2:40 P.M.	Stockton	3:30 A.M.
3:54 P.M.	3:20 P.M.	Sacramento	3:25 A.M.
4:36 P.M.	4:00 P.M.	Marysville	3:20 A.M.
5:18 P.M.	4:40 P.M.	Sacramento	3:15 A.M.
6:00 P.M.	5:20 P.M.	San Francisco	3:10 A.M.
6:42 P.M.	6:00 P.M.	Oakland	3:05 A.M.
7:24 P.M.	6:40 P.M.	San Jose	3:00 A.M.
8:06 P.M.	7:20 P.M.	Stockton	2:55 A.M.
8:48 P.M.	8:00 P.M.	Sacramento	2:50 A.M.
9:30 P.M.	8:40 P.M.	Marysville	2:45 A.M.
10:12 P.M.	9:20 P.M.	Sacramento	2:40 A.M.
10:54 P.M.	10:00 P.M.	San Francisco	2:35 A.M.
11:36 P.M.	10:40 P.M.	Oakland	2:30 A.M.
12:18 P.M.	11:20 P.M.	San Jose	2:25 A.M.
1:00 P.M.	12:00 P.M.	Stockton	2:20 A.M.
1:42 P.M.	12:40 P.M.	Sacramento	2:15 A.M.
2:24 P.M.	1:20 P.M.	Marysville	2:10 A.M.
3:06 P.M.	2:00 P.M.	Sacramento	2:05 A.M.
3:48 P.M.	2:40 P.M.	San Francisco	2:00 A.M.
4:30 P.M.	3:20 P.M.	Oakland	1:55 A.M.
5:12 P.M.	4:00 P.M.	San Jose	1:50 A.M.
5:54 P.M.	4:40 P.M.	Stockton	1:45 A.M.
6:36 P.M.	5:20 P.M.	Sacramento	1:40 A.M.
7:18 P.M.	6:00 P.M.	Marysville	1:35 A.M.
8:00 P.M.	6:40 P.M.	Sacramento	1:30 A.M.
8:42 P.M.	7:20 P.M.	San Francisco	1:25 A.M.
9:24 P.M.	8:00 P.M.	Oakland	1:20 A.M.
10:06 P.M.	8:40 P.M.	San Jose	1:15 A.M.
10:48 P.M.	9:20 P.M.	Stockton	1:10 A.M.
11:30 P.M.	10:00 P.M.	Sacramento	1:05 A.M.
12:12 P.M.	10:40 P.M.	Marysville	1:00 A.M.
12:54 P.M.	11:20 P.M.	Sacramento	9:55 A.M.
1:36 P.M.	12:00 P.M.	San Francisco	9:50 A.M.
2:18 P.M.	12:40 P.M.	Oakland	9:45 A.M.
3:00 P.M.	1:20 P.M.	San Jose	9:40 A.M.
3:42 P.M.	2:00 P.M.	Stockton	9:35 A.M.
4:24 P.M.	2:40 P.M.	Sacramento	9:30 A.M.
5:06 P.M.	3:20 P.M.	Marysville	9:25 A.M.
5:48 P.M.	4:00 P.M.	Sacramento	9:20 A.M.
6:30 P.M.	4:40 P.M.	San Francisco	9:15 A.M.
7:12 P.M.	5:20 P.M.	Oakland	9:10 A.M.
7:54 P.M.	6:00 P.M.	San Jose	9:05 A.M.
8:36 P.M.	6:40 P.M.	Stockton	9:00 A.M.
9:18 P.M.	7:20 P.M.	Sacramento	8:55 A.M.
10:00 P.M.	8:00 P.M.	Marysville	8:50 A.M.
10:42 P.M.	8:40 P.M.	Sacramento	8:45 A.M.
11:24 P.M.	9:20 P.M.	San Francisco	8:40 A.M.
12:06 P.M.	10:00 P.M.	Oakland	8:35 A.M.
12:48 P.M.	10:40 P.M.	San Jose	8:30 A.M.
1:30 P.M.	11:20 P.M.	Stockton	8:25 A.M.
2:12 P.M.	12:00 P.M.	Sacramento	8:20 A.M.
2:54 P.M.	12:40 P.M.	Marysville	8:15 A.M.
3:36 P.M.	1:20 P.M.	Sacramento	8:10 A.M.
4:18 P.M.	2:00 P.M.	San Francisco	8:05 A.M.
5:00 P.M.	2:40 P.M.	Oakland	8:00 A.M.
5:42 P.M.	3:20 P.M.	San Jose	7:55 A.M.
6:24 P.M.	4:00 P.M.	Stockton	7:50 A.M.
7:06 P.M.	4:40 P.M.	Sacramento	7:45 A.M.
7:48 P.M.	5:20 P.M.	Marysville	7:40 A.M.
8:30 P.M.	6:00 P.M.	Sacramento	7:35 A.M.
9:12 P.M.	6:40 P.M.	San Francisco	7:30 A.M.
9:54 P.M.	7:20 P.M.	Oakland	7:25 A.M.
10:36 P.M.	8:00 P.M.	San Jose	7:20 A.M.
11:18 P.M.	8:40 P.M.	Stockton	7:15 A.M.
12:00 P.M.	9:20 P.M.	Sacramento	7:10 A.M.
12:42 P.M.	10:00 P.M.	Marysville	7:05 A.M.
1:24 P.M.	10:40 P.M.	Sacramento	7:00 A.M.
2:06 P.M.	11:20 P.M.	San Francisco	6:55 A.M.
2:48 P.M.	12:00 P.M.	Oakland	6:50 A.M.
3:30 P.M.	12:40 P.M.	San Jose	6:45 A.M.
4:12 P.M.	1:20 P.M.	Stockton	6:40 A.M.
4:54 P.M.	2:00 P.M.	Sacramento	6:35 A.M.
5:36 P.M.	2:40 P.M.	Marysville	6:30 A.M.
6:18 P.M.	3:20 P.M.	Sacramento	6:25 A.M.
7:00 P.M.	4:00 P.M.	San Francisco	6:20 A.M.
7:42 P.M.	4:40 P.M.	Oakland	6:15 A.M.
8:24 P.M.	5:20 P.M.	San Jose	6:10 A.M.
9:06 P.M.	6:00 P.M.	Stockton	6:05 A.M.
9:48 P.M.	6:40 P.M.	Sacramento	6:00 A.M.
10:30 P.M.	7:20 P.M.	Marysville	5:55 A.M.
11:12 P.M.	8:00 P.M.	Sacramento	5:50 A.M.
11:54 P.M.	8:40 P.M.	San Francisco	5:45 A.M.
12:36 P.M.	9:20 P.M.	Oakland	5:40 A.M.
1:18 P.M.	10:00 P.M.	San Jose	5:35 A.M.
2:00 P.M.	10:40 P.M.	Stockton	5:30 A.M.
2:42 P.M.	11:20 P.M.	Sacramento	5:25 A.M.
3:24 P.M.	12:00 P.M.	Marysville	5:20 A.M.
4:06 P.M.	12:40 P.M.	Sacramento	5:15 A.M.
4:48 P.M.	1:20 P.M.	San Francisco	5:10 A.M.
5:30 P.M.	2:00 P.M.	Oakland	5:05 A.M.
6:12 P.M.	2:40 P.M.	San Jose	5:00 A.M.
6:54 P.M.	3:20 P.M.	Stockton	4:55 A.M.
7:36 P.M.	4:00 P.M.	Sacramento	4:50 A.M.
8:18 P.M.	4:40 P.M.	Marysville	4:45 A.M.
9:00 P.M.	5:20 P.M.	Sacramento	4:40 A.M.
9:42 P.M.	6:00 P.M.	San Francisco	4:35 A.M.
10:24 P.M.	6:40 P.M.	Oakland	4:30 A.M.
11:06 P.M.	7:20 P.M.	San Jose	4:25 A.M.
11:48 P.M.	8:00 P.M.	Stockton	4:20 A.M.
12:30 P.M.	8:40 P.M.	Sacramento	4:15 A.M.
1:12 P.M.	9:20 P.M.	Marysville	4:10 A.M.
1:54 P.M.	10:00 P.M.	Sacramento	4:05 A.M.
2:36 P.M.	10:40 P.M.	San Francisco	4:00 A.M.
3:18 P.M.	11:20 P.M.	Oakland	3:55 A.M.
4:00 P.M.	12:00 P.M.	San Jose	3:50 A.M.
4:42 P.M.	12:40 P.M.	Stockton	3:45 A.M.
5:24 P.M.	1:20 P.M.	Sacramento	3:40 A.M.
6:06 P.M.	2:00 P.M.	Marysville	3:35 A.M.
6:48 P.M.	2:40 P.M.	Sacramento	3:30 A.M.
7:30 P.M.	3:20 P.M.	San Francisco	3:25 A.M.
8:12 P.M.	4:00 P.M.	Oakland	3:20 A.M.
8:54 P.M.	4:40 P.M.	San Jose	3:15 A.M.
9:36 P.M.	5:20 P.M.	Stockton	3:10 A.M.
10:18 P.M.	6:00 P.M.	Sacramento	3:05 A.M.
11:00 P.M.	6:40 P.M.	Marysville	3:00 A.M.
11:42 P.M.	7:20 P.M.	Sacramento	2:55 A.M.
12:24 P.M.	8:00 P.M.	San Francisco	2:50 A.M.
1:06 P.M.	8:40 P.M.	Oakland	2:45 A.M.
1:48 P.M.	9:20 P.M.	San Jose	2:40 A.M.
2:30 P.M.	10:00 P.M.	Stockton	2:35 A.M.
3:12 P.M.	10:40 P.M.	Sacramento	2:30 A.M.
3:54 P.M.	11:20 P.M.	Marysville	2:25 A.M.
4:36 P.M.	12:00 P.M.	Sacramento	2:20 A.M.
5:18 P.M.	12:40 P.M.	San Francisco	2:15 A.M.
6:00 P.M.	1:20 P.M.	Oakland	2:10 A.M.
6:42 P.M.	2:00 P.M.	San Jose	2:05 A.M.
7:24 P.M.	2:40 P.M.	Stockton	2:00 A.M.
8:06 P.M.	3:20 P.M.	Sacramento	1:55 A.M.
8:48 P.M.	4:00 P.M.	Marysville	1:50 A.M.
9:30 P.M.	4:40 P.M.	Sacramento	1:45 A.M.
10:12 P.M.	5:20 P.M.	San Francisco	1:40 A.M.
10:54 P.M.	6:00 P.M.	Oakland	1:35 A.M.
11:36 P.M.	6:40 P.M.	San Jose	1:30 A.M.
12:18 P.M.	7:20 P.M.	Stockton	1:25 A.M.
1:00 P.M.	8:00 P.M.	Sacramento	1:20 A.M.
1:42 P.M.	8:40 P.M.	Marysville	1:15 A.M.
2:24 P.M.	9:20 P.M.	Sacramento	1:10 A.M.
3:06 P.M.	10:00 P.M.	San Francisco	1:05 A.M.



FOR SALE BY THE
HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.

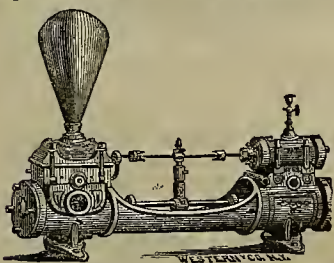
Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS,
POST OFFICE LOCK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOOKS,
UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.
OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.
Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

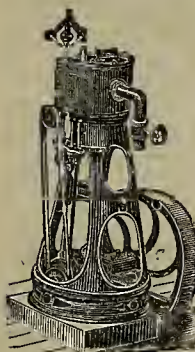
Pacific
Insurance Company,
No. 22 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

A. L. FISH, Agent.
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3q516p



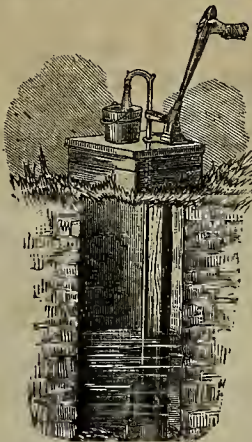
RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting.
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—AND—
HAMMERED IRON
Of every description and size.
Orders addressed to **PACIFIC ROLLING MILL COMPANY** Post Office, San Francisco, Cal., will receive prompt attention
The highest price paid for Scrap Iron 9v143m 9p

THE AMERICAN SUBMERGED PUMP.



Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.

No. 0.—Iron, \$15; Iron Galvanized, \$17; Capacity, 500.....	Gallons per Hour.
"1.—" 25; " 30; " 1,000 to 1,200.....	" " "
"2.—" 40; " 45; " 2,000 to 2,500.....	" " "
"3.—" 70; " 75; " 4,000.....	" " "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY

PACIFIC PUMP MANUFACTURING COMPANY,
318 Pine street, San Francisco.

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



This device is just what its name indicates. As a KITCHEN Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufactory cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

New England Spring Bed.

The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

Logan's Rubber Back Lash Spring

Patented May 17, 1870. The attention of Manufacturers and Mill Owners is respectfully called to the above valuable invention for

Preventing Back Lash in Mill Gearing.

No argument is deemed necessary to convince an intelligent Miller of the importance of preventing back lash, as it is well known that both the quantity and quality of the flour depends largely upon the steadiness of motion of the Burrs. Whenever the motion is communicated by an engine having two points in the revolution of the Fly Wheel where no power is applied, there must be an unequal motion, and consequently more or less back lash. By the use of a very heavy fly-wheel or a high speed, this inequality of motion may be diminished but it cannot be entirely prevented, and more steam will be required than with a lighter fly-wheel or slower speed. By the use of

Logan's Patent Rubber Springs,

the Back Lash is entirely prevented. The pinion being loose upon the spindle, and the connection between them being by the springs, the action of the springs keeps the cogs of the pinion at all times firm against those of the driving wheel, while a continuous forward pressure is given to the spindle and through it to the Mill-Stones. The Right to the Pacific Coast is placed in our hands for sale at a very low price. Parties interested will please write for descriptive circular or call at our office and examine the model. A large number have already been sold and put into use in the Eastern States, and three are in daily use in a flour mill in this state. Parties buying territory will be furnished with the springs at manufacturing cost from the Factory in Illinois, or will be furnished with a sample to manufacture from free of charge.

WIESTER & CO.,

17 New Montgomery Street, (Grand Hotel), San Francisco.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,

Civil and Mechanical Engineer,

519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. 1e18-tf-16p

PACIFIC FILE WORKS,

No. 53 Beale Street, between Market and Mission,
SAN FRANCISCO.



FILES of every description made and re-cut to order, JOB GRINDING of all kinds done at short notice. A complete assortment of New Files constantly on hand. Reaper and Mower Sections, Bars, etc., made to order. All work warranted. Orders from the country promptly attended to. No Chinese employed. 1e18-3m ROSS & HARVEY, Proprietors.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Cocks, Steam Whistles. **HYDRAULIC PIPES AND NOZZLES** for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLED RAWHIDE. Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. 25

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS.



KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and Cartridge Papers, &c., &c

Blank Books made to order from Crew Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St., San Francisco.
19v2leonly

MAOAZINES.	P. An	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansone and
New York Ledger.....		Washington streets,
Blackwood.....	3 00	SUPPLIER ALL
Hours at Home.....		Eastern Periodicals,
Good Words.....	5 00	BY THE
Peterson's.....	6 00	Year, Month, or Number.
Arthur.....		
Lady's Friend.....		
Harper's Weekly.....		
Chimney Corner.....		
Literary Album.....		
London Society.....		
All the Year Round.....		
London Ill. News.....	15 00	

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 4, 1871.

VOLUME XXII.
Number 9.

Harvesting Machines.

Reaping machines are peculiarly American. Although dreamed of and rudely experimented with in other countries for generations past, it was American genius and skill which turned these dreams into realities and produced the first really practical reaper and mower.

The first reaper, Mr. McCormick's, as made in 1848, was a queer and cumbersome-looking affair, yet it did good work, because it was founded on correct principles of construction, the same principles which, it is worthy of note, are to be found in one form or another in every machine of the present day. There is an old cut extant

and after sweeping across the platform, it as gently resumes its place as part of the reel. The revolving and eccentric motion of the rake being regular, continuous and well balanced, it is consequently free from all jars or jerks, and better still, whatever grain falls on the platform is sure to be raked off in good shape, let the straw be six feet long or but six inches.

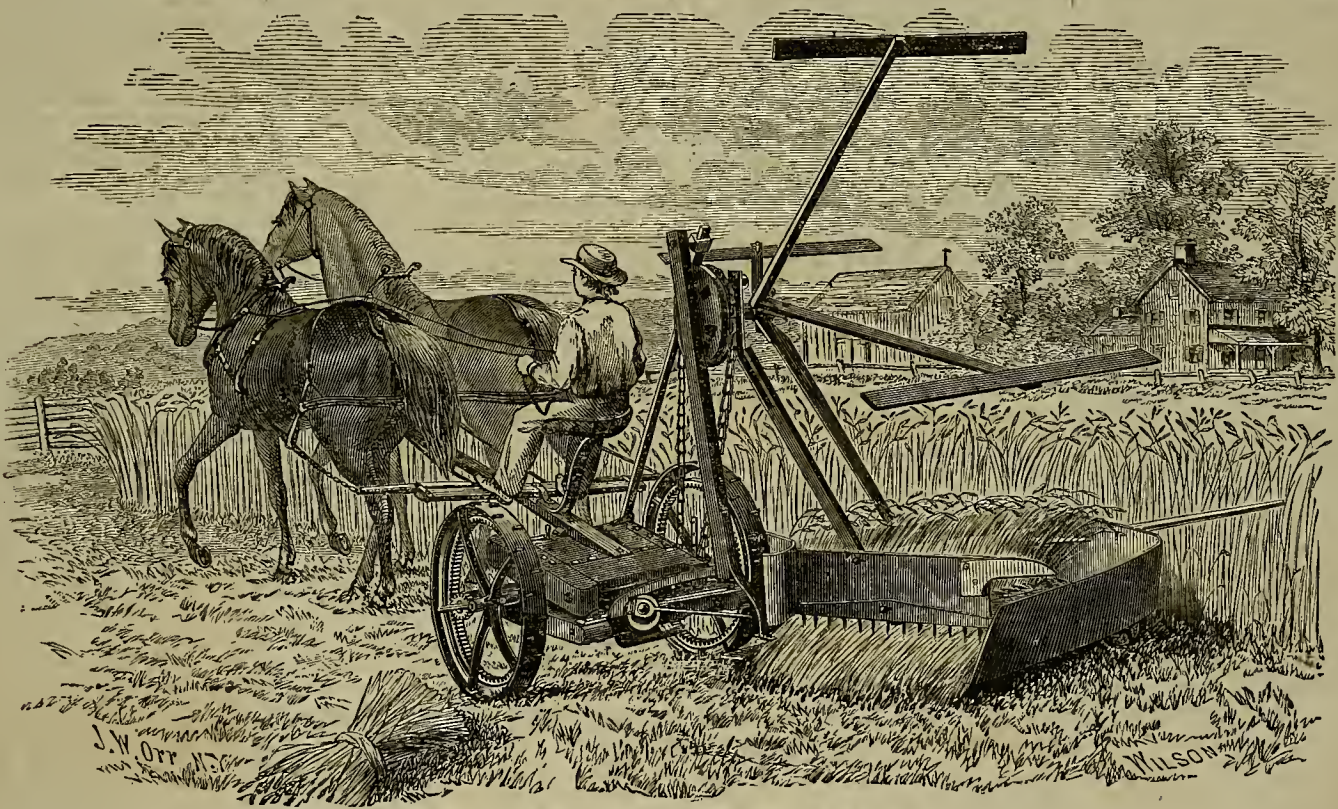
As a mower, it cuts four feet wide with a separate cutter bar. When ready for mowing, it is identical with the Prize Mower, which we may perhaps describe hereafter.

The Advance was produced in 1868, but was not offered to the public until it had been thoroughly tested by the manufacturers. Then it was put on sale, and has been

IRON ORE IN WYOMING.—About a year ago, iron ore in large amounts were discovered about 40 miles from Cheyenne, where there is said to be "a mountain of almost pure magnetic iron." The *Post* describes this as "a spur of the Black Hills, an isolated peak, a mile long by several hundred feet wide, rising almost perpendicularly 2,000 feet above the general surface on the west side, and covered with earth and drift on the east. The ore is stratified and entirely free from rock. The blocks are crystalline and break with a fracture almost like cast-iron." South of Cheyenne immense deposits of brown hematite have been found. The *Cheyenne Leader* states that lately a sample lot of 1,000 pounds

STOCK AND TILLAGE IN GREAT BRITAIN. The area of land under tillage in Great Britain is only 53 out of every hundred acres, viz:—Scotland 22 per cent. Ireland 76, Wales 53, England proper, 71. Ireland has the largest proportion of cattle, Scotland of sheep, Ireland and England of pigs. In 1869 there were altogether in Great Britain, 5,300,000 cattle, 29,500,000 sheep, and 1,900,000 pigs—the annual consumption of poultry is equal to 20,000,000 head.

THOMPSON STEAM WAGON FOR LOS ANGELES.—The *Los Angeles News* says that one of the Thompson steam wagons is to be tried on the route between Los Angeles and the Yellow Pine Mining District with



THE MCCORMICK "ADVANCE" REAPER AND MOWER.

which shows the old reaper, and which would bring a smile to the face of our readers could we show it to them. This, however, we cannot do; but, in place thereof, we give an illustration of the McCormick as made in 1871, the so-called "Advance" reaper and mower.

The Advance is a self-raker, cutting a swath five feet wide, and delivering the grain at the side of the machine, where it can lie undisturbed until it suits the farmer's convenience to bind it, or until it is fit to bind: for grain is seldom in order to bind as fast as cut. It is often cut green to save it from some threatened danger, or so weedy that immediate binding is out of the question. The cutter is a serrated-edge sickle, which will cut an entire season without grinding. The rake revolves with the reel as one of the fans, until it brings the grain past the sickle, when it gently parts company with the other reel fans,

very successful, and a large number of testimonials are given to its excellence. The machines are light, simple, strong and durable, and the manufacturers warrant them. The price of the Advance is \$200.

The machines are manufactured by C. H. McCormick & Bro., Chicago, who may be addressed for any further information.

CONSUMING SMOKE.—According to the *Iron Age*, a number of experiments made in Ohio, show that nothing is so simple and effective in preventing the escape of smoke as the introduction of sufficient oxygen into the furnace to effect complete combustion of the fuel.

NEW STAMP MILL.—Mr. James Creighton, of Placerville, has just completed and commenced working a ten-stamp gravel mill in El Dorado county.

was sent to Omaha to be tested by the Master Mechanic of the U. P. shops, who found that the ore contains 80 per cent. of pure iron. We do not know how competent the master mechanic may be to test iron ore, but if he really returned this amount, we may be permitted to suggest that it be tested by somebody else. The ore may be very rich, but the very purest magnetite, which is a compound of the protoxide and the sesquioxide of iron, is composed of 72.4 per cent. of iron and 27.6 per cent. of oxygen. The purest kinds of the ore furnish, by good management of the furnace, about 70 per cent. of crude iron; on an average, from 50 to 55 per cent. may perhaps be calculated on. All accounts, however, tend to show that Wyoming has a future in the iron business.

THE GREAT HAMMER, "Eritz," at Krupp's works in Prussia, weighs 100,000 pounds and cost \$540,000.

a view to introducing that means of transportation, if it can be made practicable.

LARGE GROWTH.—There is a castor oil plant in a garden in Memphis, Tennessee, which was planted in May, 1870, and in November of the same year, it had grown to a height of 23 feet, with an overhanging foliage of 15 feet diameter. The trunk was 18 inches in circumference, at 10 inches above the ground.

TARIFF ON COAL brought into this port. On all except anthracite and bituminous coal, 40 cents per ton; anthracite coal is duty free; bituminous, \$1 25 per ton; dust or screenings of bituminous coal, \$1 25 per ton; coke, 25 per cent. *ad valorem*.

PASSENGER TRAINS commenced running on the Copperopolis railroad on the 22d. ult.

MECHANICAL PROGRESS.

THE BARRON STEEL-MAKING PROCESS.—Of this Dr. Newberry says: "This is a new method, and one perhaps not yet beyond the condition of an experiment, but it has at least sufficed for the production of steel of as fine a quality as has ever been made by any other means. The whole process consists in exposing malleable iron to the action of gaseous hydro-carbons at a temperature just below that of fusion. Under these circumstances the iron rapidly and regularly absorbs the carbon of the gas, and becomes steel. By the Barron process, shapes of iron are converted into steel without change of form, and this is the most satisfactory application of it I have seen. For example: tools or implements of any kind may be moulded and cast, these shapes made malleable by the ordinary process, and then, by impregnation, converted into steel, coming out as scissors, knives, axes, or other implements of the very best quality, with no forging whatever. Whether this method is capable of effecting cheaply the conversion of large masses of iron, is not yet demonstrated, though it is claimed; but from the fact that a piece of iron may by this means be covered with a sheet of enamel, or coated with a layer of any desired thickness of steel, while yet retaining all the toughness of its iron core, and that by a coating of clay, the absorption of carbon may be limited to any portion of the surface acted upon, it is evident that this method is destined to have extensive application in the arts. The quality of steel made by this process is such as leaves nothing to be desired. With tailors' shears, cast in form, made malleable, and then converted by the Barron process, I have cut Florence silk so nicely as to prove the edge perfect; then with these same shears have cut up sheets of tin and untempered steel; returning to the silk have found the edge wholly unimpaired, and this after a repetition of the trial more than twenty times."

FOUR-CYLINDER LOCOMOTIVE WITHOUT OSCILLATION.—At a meeting of the London Institution of Civil Engineers, Jan. 24th, W. B. Adams read a paper upon "Train Resistance on Railways." *Engineering* gives an abstract, from which we quote: "A new class of engine, adapted to give great increase of power and steadiness, was described, in which four cylinders might be used without causing oscillation. The engine had eight driving wheels, the four central flanged, with a sufficient length of wheel base for steadiness, and the end wheels with plain tyres, adapted to run without flange friction round curves of 3 chains radius. The cylinders were placed at the central length of the frame, equidistant between the four wheels—two on each side, one under the other; the two pistons on each side working in opposite directions, and thus neutralising oscillation, each piston working a pair of coupled wheels. The engine might be worked by one set of eccentrics on the forward axles, but in case of an irregular slip of the wheels interfering with the due entrance and exit of the steam, eccentrics could be used to each pair of cylinders, and either pair have the steam shut off at pleasure, by the driver on the foot plate, when the full power might not be required. An express engine on a similar plan might have the four end wheels drivers, and the four central wheels sliding laterally to suit curves."

ENGLISH VS. AMERICAN WOOLENS.—A *Tribune* correspondent gives the reason why the first hold color best: "The fatty matters in the pores of the wool or adhering to its fibers cannot be completely removed at one operation, even by the best chemical agents known to the trade; and, as my informant describes it, the practice abroad is to keep wool for first-class goods three years, giving it a cleaning process once each year. In this way the fatty matter on the surface of the wool is eliminated by the first cleansing process; that which gradually exudes during the first year, by the second cleaning; and so on till the whole is finally removed, and the wool left in a condition to take the dyes well, and also to become thoroughly shrunken before being made up. On the other hand, as the American manufacturers do not thoroughly cleanse their stock, the fatty matter left therein not only prevents the complete penetration of the dye, but renders it impossible to fully shrink the goods made therefrom."

NAYLOR'S CONTINUOUS BRAKE.—London *Engineering* speaks of this as one of the most promising devices yet. It is about to be applied on the London & Dover Railway. We quote:—"Mr. Naylor fits each brake carriage with a long brake lever fixed on the weigh shaft which carries the arms by which the brake blocks are applied. This long lever is, when the brake is out of action, held up by a chain, which passes under a pulley at its extremity, this chain extending throughout the train, and being kept taut by suitable appliances. On this chain being slackened, the long lever falls partly on account of its own weight and partly because it is pressed down by the action of a spiral spring. * * The chain which holds up the levers can be released with great promptness by simply slackening a brake applied to the drum on which it is wound, and this being done the brakes go on throughout the train one after the other as fast as the chain can run out, and under the influence of the springs this is very fast indeed. Of course in the event of the train parting, the brake chain is broken, and the brakes brought at once into action, so that if the breaking away occurs on an incline the brake will be applied before the hind part of the train has time even to commence running back. In this respect Mr. Naylor's arrangement possesses a decided advantage over those in which it is necessary that the train should run a certain distance before the brake blocks are applied. For tightening the chain, and thus taking off the brake, Mr. N. employs several arrangements, according to circumstances."

THE SHERMAN IRON PROCESS.—We have before spoken of this. London *Engineering* for Jan. 27th has a second article upon it, giving its rationale, and stating that further experiments have been successful, especially in the puddling of iron. We quote:—"The Sherman process consists in the application of iodine, for the purpose of removing sulphur and phosphorus from the iron. The specification of Mr. Sherman's patent is very well worded, and covers all forms and methods by which a metallurgist can directly or indirectly apply iodine for effecting the purpose in view. The rationale of the process, however, is not given in the specification, nor is it readily perceptible on the face of any description of the process itself, particularly when the smallness of the quantity of iodine employed by Mr. Sherman is taken into consideration. It appears, however, that an indirect action may take place between the phosphide of iron in the liquid metal, and the free iodine in contact with it, by which a combination of iodine and phosphorus is formed. This new compound is readily decomposed by contact with the atmosphere, or with additional quantities of phosphide of iron, and the iodine leaves the phosphorus in the amorphous state, in which it seems to be unable to combine with the iron, but is readily burnt, and escapes as vapour or phosphorous acid with the flame. The property of iodine to render phosphorus amorphous is well known, and the action upon the phosphorus combined with the iron may be analogous to this interesting reaction of the two elements upon each other."

EFFECT OF COLD UPON IRON AND STEEL.—A series of papers have been read before the Manchester Philosophical Society, upon the question of the effect of intense cold upon the strength of iron and steel, and the results show that the cold has no appreciable effect. Mr. W. Brockbank collated the results of experiments made by various persons. Similar bars were tested whilst frozen, and after having been thawed and allowed to cool to the ordinary temperature. The frozen bars were more crystalline, and showed no sign of fiber, whilst those thawed show a good amount of fiber, and were slightly crystalline. Dr. Joule has made a series of experiments upon the subject, which result in the general conclusion that frost does not make either iron (cast or wrought) or steel brittle, and that accidents arise from the neglect of the companies to submit wheels, axles, and other parts of their rolling stock to a practical and sufficient test before using them. The experiments by Mr. P. Spence, which form the subject of another paper, showed that reduction of temperature, other things being equal, increases the strength of cast-iron. *Lond. Min. Journal*, Jan. 28.

THE GLUE WORKS AT PEABODY, MASS.—cover 33 acres of ground and produce about 2,260,000 lbs. per annum, mostly of cabinet and the higher grades of glue.

SCIENTIFIC PROGRESS.

MIVART ON THE GENESIS OF SPECIES.—This new book is reviewed in *Nature* for Feb. 2d by Alfred W. Bennett. We have space only for a brief notice of this review. Mr. Bennett names the objections brought forward by the author against the theory of Natural Selection, and dwells for a time upon those most fully worked out in the book. He remarks that "hitherto the attention of those naturalists who have concerned themselves with the intricate problems of organic life, has been directed almost exclusively to the animal kingdom;" while he believes that on the contrary more light will be thrown upon them by a consideration of the phenomena of the vegetable kingdom. "Plants have less power of adapting themselves to new conditions; their locality and their food are prescribed for them by the circumstances of their birth; here therefore we might expect to find the rule of survival of the fittest to reign supreme." Mr. Bennett closes thus: "The present state of the argument we take to be this:—The theory of Natural Selection, in the hands of Mr. Darwin and Mr. Wallace, afforded a simple, a beautiful, and a valid solution of the origin of a large number of the organic phenomena by which we are surrounded; by many disciples of Mr. Darwin it has been assumed, perhaps too rashly, as adequate to account for the entire evolution of all the existing forms of animal and vegetable life from one or a few primordial germs. To this idea, so seductive in its very simplicity, a number of more or less cogent objections have now been urged. It is possible that on still closer examination, these objections will be found to break down; but in the meantime we must suspend our judgment; and in order to save defeat, the next move must be made by the advocates of Natural Selection, a *prima facie* case against them having at all events been made out. Mr. Mivart has no counter theory to propose, beyond a belief that there exists in all organic life an innate power analogous to intelligence, which controls their actions as reason does those of men. Should the inquiries which are now being energetically pursued on every side result in our acquiring more accurate knowledge of such force, it will be safe to predict that to it will then be ascribed a more easy and natural solution of many phenomena which we are now forced to attribute to Natural Selection."

"BALL LIGHTNING."—A paper was read, Jan. 12th, before the Royal Society, by C. F. Varley, in which were detailed some new electrical experiments. One of these, which the author thinks may afford an explanation of the phenomenon known as "ball lightning," we copy,—premising that a Holtz machine was used, and that the brass balls on the poles were about an inch in diameter:—"Tie to the negative pole a small thin strip or filament of wood three inches in length, and bent so as to project on each side of the negative pole, and a little beyond it towards the positive. On rotating the machine, two bright spots are seen upon the positive pole. If the positive pole be made to rotate upon its axis, the luminous spots do not rotate with it; if, however, the negative pole, with its filament of wood, be rotated, the spots on the positive pole obey it, and rotate also. The insertion of a non-conductor, such as a strip of glass, in front of the projecting wooden end, obliterates the luminous spot on the positive pole. When the author first discovered this, he, seeing apparently pieces of dirt on the positive pole, wiped it clean with a silk handkerchief, but there they remained in spite of all wiping; he then examined the negative pole, and discovered a minute speck of dirt corresponding to the luminous spots on the positive pole. When the filament of wood is removed from the negative pole there is sometimes a luminosity or glow over a large portion of the surface of the positive ball. If in this state three or four little pieces of wax, or even a drop or two of water, be placed upon the negative pole, corresponding non-luminous spots will be found upon the positive pole, which rotate with the former, but do not with the latter. It is therefore evident that there are lines of force existing between the two poles, and by these means one is able to telegraph from the negative

to the positive pole to a distance of eight inches through the air, without any other conductor than that which the electrical machine has constructed for itself across the non-conducting gas. The foregoing seems to the author to give a possible explanation of "ball lightning;" if it be possible for there to be a negatively electrified cloud sufficiently charged to produce a flash from the earth to the cloud, a point in the cloud would correspond to the wood projection on the negative conductor; if such a cloud exist, a luminous spot would be seen moving about the surface of the earth, corresponding to the moving point of cloud over it, and thus present phenomena similar to those described by the privileged few who have witnessed this extraordinary natural phenomenon."

CONTINUITY OF THE CHALK.—The following is the concluding paragraph of an article in *Nature* by Wyville Thompson, whose remark that "we may be said to be still living in the Cretaceous epoch" has been objected to by Sir Chas. Lyell:—"Sir Charles asks if we have dredged belemnites, ammonites, baculites, hamites, turritiles, &c.; that question is, I think, best answered by the record of the old Cretaceous beds themselves, which are scarcely more remarkable for the presence of these singular and beautiful forms than for their rapid extinction. According to the view which I have felt myself compelled to adopt, the various groups of fossils characterising the Tertiary beds of Europe and North America represent the constantly altering fauna of the shallower portions of an ocean whose depths are still occupied by a deposit which has been accumulating continuously from the period of the pre-Tertiary chalk, and which perpetuate with much modification the pre-Tertiary chalk fauna. I do not see how this view militates in the least against the "resounding and classification" of that geology which we have learned from Sir Charles Lyell. Our dredgings only show that these abysses of the ocean which Sir Charles Lyell admits in the passage quoted above to have outlasted on account of their depth a succession of geological epochs, are inhabited by a special deep-sea fauna possibly as persistent in its general features as are the abysses themselves."

BASTIAN REPLIES TO FRANKLAND.—In our issue for Feb. 18th we gave the result of an experiment by Dr. Frankland to disprove Dr. Bastian's conclusions in regard to the production of organisms from unorganized matter. Dr. B. replies, in *Nature* for Jan. 26th, that the experiment proves nothing,—the conditions not being the same with those under which his own were made. The time, the temperature, the solution, and probably the character of the glass used, were all different. There was in his own case no internal corrosion of the tubes. Moreover, portions of the *pellicle* were used by him for microscopical examination,—not portions of a "flocculent sediment." He closes thus:—"Perhaps I may venture to recommend Dr. Frankland to destroy the other two tubes which are corroded, as being worthless, and to hope that in any future experiments, he will subsequently expose his fluids to a somewhat higher temperature, and also, before immersing his experimental tubes in any fluids, that he will thoroughly satisfy himself as to the transparency of such fluids to the actinic or chemical rays of light. We are informed that his tubes were 'exposed to bright diffused daylight, and sometimes to sunlight,' but any amount of exposure to light would be more or less useless if strong sulphuric acid and strong carbolic acid are as black to the chemical rays of light as nitrite of amyl and other fluids have been shown to be. Dr. Frankland makes no statement concerning this very important point."

ACOUSTIC STUDIES OF FLAMES.—This is the title of an article in a late number of *Poggendorff's Annalen*, by E. Villari. The author found that the tone of a vibrating tuning-fork was reinforced when brought near to a large gas-flame. When the flame, which was thus thrown into sympathetic vibration, was looked at through radial slits in a rapidly revolving opaque disc, it was found that, if the rate of rotation of the disc bore the proper relation to the rate of vibration of the fork, the flame appeared to be divided by stationary bands showing alternate maxima and minima of brilliance. When the rate of vibration was changed, but all other circumstances remained unaltered, the distance between the bands was found to vary inversely as the rate of vibration.

CORRESPONDENCE.

Notes of Travel in Tuolumne County.

[Written for the Press.]

Tuolumne County has a sectional area of 1,430 square miles, or 915,200 acres. There are about 45,000 acres enclosed and about 7,000 under cultivation. There are, in round numbers, 80,000 fruit trees and 900,000 grape vines; about 50,000 gallons of wine were made last year. It has an assessed valuation of \$1,700,000, and contains a population of 9,500; it has 500 miles of ditching (original cost, over \$3,000,000) and 20 saw mills, making yearly over 5,000,000 feet of lumber. The county is mountainous and celebrated for its mineral wealth, particularly of gold. It is one of the oldest mining counties in the State, from which more gold has been extracted than from any other equal area in California. (?) Some of the richest gold mines in the State are located here. Constant developments are being carried on by mining companies, and hundreds of thousands of dollars have been expended here for quartz mills alone, of which there are 45 in the county, 11 now successfully in operation.

One of the most valuable and extensive marble quarries on this coast is located about two miles from Columbia. The marble is pronounced equal to the Italian white. The quarry is owned by John McNamee; the machinery and derricks for hoisting are run by water power. This county could supply the State with lime and marble. It is well adapted to raising cereals and fruits; and the eastern half, about 15 x 30 miles, is covered with the finest of timber. It has an unlimited supply of sandstone of the finest quality, and could supply from two to five thousand tons of graphite (plumbago) yearly, of which material there are used in the U. S., annually, 10,000 tons. It has any amount of water power. With the proper means of communication (a railroad *via* Copperopolis), it could supply the San Joaquin Valley with lumber, wood and ice. And, in addition, its undeveloped mineral resources of iron, copper, zinc and lead, with a proper cheap transit to market, would yield abundantly.

They paid off this last year (1870) \$24,000 of the county debt, including interest. The outstanding indebtedness will not now exceed \$71,000. They will reduce the taxation slightly this year, and still pay off as much of the old debt next year. The current expenses also have been paid in cash, leaving a surplus and no new indebtedness, which predicts for this county that it has seen its worst days.

Sonora.

Sonora, the county seat, is distant from Stockton 64 miles. It has 1,650 inhabitants, contains two good hotels and as many lively stables, a fine public school, a very complete foundry and machine shop, owned by Messrs. Phelps, Shephard & Cowie, where, in addition to the usual machinery and castings made at such a place, they are now making a large amount of plows. Their arrangements for making of cores and baking the same are as complete as I ever saw.

E. J. Marsters, of Shaw's Flat, is the inventor of a field press and horse power that is really deserving of merit. It is mounted on wheels, like an ordinary farm wagon, and presses directly from the winnow.

Quartz Mines Reviewed.

The Confidence, 13 miles east of Sonora, is probably the best paying of the southern mines. As it is not for sale, I may be allowed to speak of its merits. It is owned by the Messrs. Holladay, of San Francisco, and is superintended by L. Gibson Esq. The hoisting works have a 40-horse power engine and the 30-stamp mill has 60-horse power engine. The mill is situated in close proximity to the hoisting works, and both are very complete. The incline shaft (inclined 30°) is down about 400 feet. At this point the ledge is from 11 to 14 feet wide. The rock has averaged for several months about \$55 per ton. From an eight days run, three weeks since, nearly \$17,000 in hullion was realized; and

about \$40,000 for the month ending at that time. At present about 60 men are employed. This company own 2,100 feet of a similar ledge, and as far as opened, (and it is the best opened mine I ever was in) the ledge has gold visible in every hundred pounds. Under its present successful management, it looks as if it would last for years to come. The extraordinary fineness of the gold in this mine makes it all the more valuable, the gold running from 900 to 920 fine, as the following figures of the relative value of gold according to fineness will explain:—gold at 800 fine, is worth \$16.53 $\frac{1}{4}$, at 900, \$18.60 $\frac{1}{4}$, and at 920, \$19.018.

The Excelsior, once so famous, is situated three miles east of the Confidence, and the geological and mineralogical features of the two are similar, if not precisely the same. The yield of this mine has been about \$325,000, the result of 20 months crushing with a 10-stamp mill. The mine is now locked up, and has been for the past five years, but for what reason I do not know. It is said to be a personal difficulty among its owners. Miners in the vicinity, who formerly worked in the mine, think it among the richest in the State. I learn that explorations have reached a depth of 175 feet and opened laterally about 400 feet. Mr. G. F. Wright, who has been absent from the State for five years past, has just returned from the East, and it is thought the mine will soon be re-opened. During the working of this mine, the company's little 10-stamp mill made several runs ranging from \$14,000 to \$25,000 per week. One lot that I know of, resulted in a clean up of \$25,800 from 50 tons of rock.

The Basin, Slope quartz claim, at Big Basin, about 20 miles east of Sonora and five miles from the Confidence, is owned by the Lewis Bros. They own a number of ledges, and are running two arrastras. The pay is found in a talcose matter running north and south. Their prospects are favorable.

L. P. MC.

[To be Continued.]

Banner District, California.

[Written for the Press.]

EDS. PRESS.—This district is undoubtedly as rich a place as has been found since early days. The principal mines are the O'Day, Maddeu, Warlock, Ladies Leg, Baileys and Cabel, and there are many more not yet fully prospected. The rock pays, on an average, about \$80 per ton, although some of the mines give a return of \$2,000, but that is picked rock. The McMechan mill has just had a run of 81 tons, and will clean up \$3,500. The McKean mill cleaned \$175 in 12 hours' run. The McMechan is a Wilson patent 2-stamp mill, and the McKean is a 5-stamp horse-power.

The great difficulty here is the want of capital. The mines are easy of access, and water and timber are abundant. The Madden company are putting up a 3-stamp horse-power mill which will be running in a few days. All the other mines are worked by the old Spanish arrastra, which is both slow and unprofitable, unless a person has mines as rich as they are here, when he can afford to lose some in the working.

BANNER.

Banner City, San Felipe Cañon, Feb. 8th, 1871.

A BAD PRACTICE.—The system of throwing all the trade and business into the hands of speculators and retailers is ruinous to the farming interests, destroys what little influence might otherwise be gained by men in that branch of industry, and puts all or most of the profit of the product thereof, into the pockets of speculators, instead of dividing it between the producer and consumer. If the producer would sell to his neighbor or the consumer at his farm, at the same figures that he sells to the retailer for and hauls it to town, sometimes a half a day or day's drive, both parties would be much benefited. I noticed some time since an account of a shipment of grain by the producer, which was a good move in the right direction and I hope it will be followed by more of the same sort.

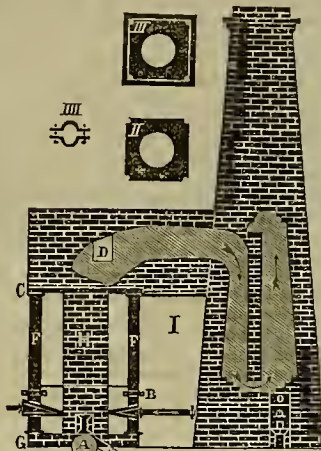
SAN DOMINGO.—The N. Y. Tribune's correspondent, who accompanies the San Domingo Commission, writes that Prof. Blake has found no coal, but immense deposits of lignite. Also, that San Domingo has no harbor for large vessels.

Smelting Furnaces in Inyo County.

[Written for the Press.]

EDS. PRESS.—I see by the SCIENTIFIC PRESS of January 28th, that your Patent Agency have filed a caveat for Messrs. Gerrish and Hinkle for what you claim as their invention in these words: "The points noted particularly are the improved method of constructing the furnaces, so that the upper part is supported independently of the lower portion, which can thus be repaired or removed at any time without disturbing the rest of the furnace," etc.

Now, I wish to inform you that I built a furnace with that "improved method," just 19 months ago, and the accompanying pen sketch will give you a good idea of what the furnaces of this section are like. The dimensions of this furnace were furnished you in a communication signed "Crowquill." In explanation of Fig. I, I may state that the "hood," of common brick, rests upon a diaphragm, C, shown fully in Fig. III, which rests on four cast iron pillars, F. At a distance of three feet above the foundation, G, we have a supplemental diaphragm (given fully in Fig. II), which supports the upper portion of the furnace, H, between the two dia-



phragms. The supplemental diaphragm can be raised and lowered at pleasure by means of collars, Fig. III, placed around the pillars at B.

The fire in the stack is the same as in your plan, except that you have a spray of water falling in the cast down. We found by experiment that the condensed matter contained nothing of value, and therefore we utilized the ash-pit of the stack, by placing an assay furnace there, as indicated by O. A is the metal-pot, E the slag channel, and D the charge-hole. The tways are two in number, but any other number may be used as required.

The well-known integrity of your firm induces me to give you this information, as I reasonably expect that you would not wish to obtain a patent of a principle for one party, which was the invention of others. All of the furnaces used in Inyo county are built on the same principle as the one shown in the sketch. The falling water has not been tried here as yet, nor has the heated blast; they may or they may not be a good idea. Mr. M. W. Belshaw is entitled to the credit of originating this furnace.

A. J. CLOSE.

Independence, Inyo Co., Feb. 5, 1871.

Our correspondent's letter is valuable as a description of the smelting furnaces in Inyo county; but we may be permitted to make a few remarks on it, as the writer has apparently some mistaken ideas with regard to the nature of caveats and patents. We might remark that calling the plan *ours* ("your plan, etc.") is not quite correct, as it was not our plan, but one of Messrs. Gerrish & Hinkle. The point would be hardly worth speaking of, as our correspondent evidently does not wish to make us responsible for it, were it not for the fact that sometimes third parties are misled by such small points.

Our correspondent is correct in supposing that we do not wish to obtain a patent for one party for an invention made by another. Nor has our Patent Agency sought any such thing in the present case, as may be seen by examining the matter.

A caveat is merely a description of the rough plan of an invention, as it exists in the mind of the inventor, which is hereaf-

ter to be elaborated and made the subject of a patent. Naturally, any essential feature, be it new or old, is included in the description. The chimney and the shaft are just such essential features, and are necessarily mentioned.

Now, in the present case, the inventor has the plan of a furnace, the upper portion of the shaft of which, for various reasons, is to be suspended independently of the lower and less durable part. He does not seek to patent the "principle" of supporting his shaft. Principles cannot be patented. The most one can do is to patent the construction and arrangement.

As many advantages accrue from this construction, it is naturally noted as an important feature in the description of any furnace. The idea is not new, not even with our correspondent. Years ago we saw this feature in the case of iron furnaces, and in the description of the "Piltz Furnace," in the SCIENTIFIC PRESS of January 14th, and in that of the furnace illustrated June 11th, 1870, essentially the same idea is given.

The fact, therefore, that the Patent Agency has filed a caveat, in which this feature is described, does not in any possible way indicate that it seeks to patent for one party the invention of another. If, however, the inventor finds, as he works out his ideas, some new construction or arrangement by which this point can be obtained, such new construction or arrangement is patentable.

In conclusion and to complete our correspondent's description, we add the following from "Crowquill's" letter, published in the PRESS of June 18, 1870.

The blast furnace is a circular one, about 8 feet in the clear in height, and 20 inches in diameter in the clear at the bottom, with an inside batter of 95° to the top of the eight feet, built of fire brick (14 inches long, moulded in the form to make the inside diameter above stated), and 12 feet in circumference on the outside. It is hooded over all at the top with common red brick, having a square hole in the side of the hood, 18x24 inches, to admit the charges. The fire-brick are made of Kaolin (of which we have abundance here) mixed with one-third of pure white quartz sand, merely dried in the sun.

C. P. R. LANDS.—There has been filed with the County Recorder of Ormsby county, Nevada, a mortgage on all the un-sold lands of the Central Pacific Railroad Company lying in the States of California and Nevada and in the Territory of Utah. The mortgage is to secure the payment of 10,000 bonds of \$1,000 each, or ten millions of dollars, and interest thereon, payable in twenty years. The instrument is dated October 1st, 1870, and was acknowledged October 31st of the same year, and is drawn in favor of Charles Crocker and Silas W. Sanderson, trustees and mortgagees. The document bears United States internal revenue stamps to the amount of \$10,000, but has no State stamps. A duplicate of the same mortgage has been recorded in eighteen counties in California.—*Nev. State Reg.*

COLORADO OIL WELLS.—A correspondent of the Colorado Register writing from Canon City, Col., under date of Jan. 27th, says:—On the afternoon of the 27th we visited the oil wells of this locality, situated five miles from the town, on 4-mile Creek. The wells are six in number, their aggregate depth 800 feet. Four are regularly flowing two barrels per week. The crude oil is refined on the ground, and those who have used it say that it is as good as that of Pennsylvania. Several coal veins have been opened that look promising. Ten miles below town, H. M. Teller, of Central, is the owner of a vein five feet thick that compares very favorably with that found in the Boulder valley.

WINE CULTURE IN FRANCE AND PRUSSIA.—In 1869, about 47,872 acres of land in Prussia were planted with grape vines; in France, 6,018,000 acres were thus covered. The value of the Prussian crop was about \$1,968,750; of the French, about \$426,000,000.

FORT WALLA WALLA is to be sold, says the Walla Walla Union, probably for the benefit of the Northern Pacific Railroad.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

MOUNTAIN.—*Miner*, Feb. 18th: This old claim, we learn, is to be opened up by J. P. Ray, for an Eastern Company. Work is already commenced.

M. & N. W. Co.—The Monitor & N. W. Co. have adopted the Whelpley & Storer furnace for roasting, and as soon as the machinery and castings now on the way from Boston arrive, a furnace is to be put up at the Company's mill on the river. From the No. 3 tunnel of this Co., some very fine specimens of ruby ore have been taken this week, and the general character of the rock is flattering.

GLOBE.—The settlers and pulverizing barrel are being placed in position at the mill, and next week the whole is expected to be in working trim.

AMADOR COUNTY.

GOLD BARS.—*Ledger*, Feb. 25th. We saw two handsome gold bars at the Assay establishment of Peter Reichling, Thursday. The gold was from the Kennedy mine. They were valued at over four thousand dollars.

CALAVERAS COUNTY.

RICH ROCK.—*Chronicle*, Feb. 25: Thirty tons of quartz from the "Big Mine" near Railroad Flat, owned by Lewis & Bro., were recently crushed in Harris' mill at Sandy gulch. The rock averaged \$30 per ton. Another lot from the same lead, will shortly be crushed in Lewis' mill. Reed & Hillary have out 50 tons, 20 of which is No. 1, and will pay \$80 dollars per ton.

EL DORADO COUNTY.

The Placerville Democrat of Feb. 25th says: "We have had a glorious storm. It is worth millions of dollars to the miners and agriculturists of California, and will save us from financial wreck."

INYO COUNTY.

HOT SPRINGS.—*Independent*, Feb. 18th: Mining matters have received a new impetus, since the shipment and sale of ores to Swansea commenced. Seven different mines are being worked. Mr. Wheeler has sent 70 tons of ore to Swansea, and has 10 to 12 more in transit. Albert Mack has sold to the same company 24,436 pounds of ore, of an average assay of \$500 per ton. The lowest lot assayed \$245, and the highest running up to \$880 per ton, the ore coming from the Rockingham, Sentinel, Cornucopia and Comanche mines.

THE TUNNELS.—The Wittekind boys have 80 feet to make before reaching the ledge. The Oceola tunnel will strike the ledge this week. The Belmont is running in small veins of ore, and will soon reach the main ledge. The Crowning Glory mine presents 80 tons of fine ore on the dump, and at least 100 more in sight.

AGAIN the works of the Owens Lake Silver-Lead Co. fired up Saturday, and on Tuesday shipped to Los Angeles, 200 bars of bullion; and the furnaces will be kept in constant operation from this time forward.

CERRO GORDO.—A tunnel is projected which will be about a mile long, starting in at Lower Town.

BEAUDRY'S.—This furnace, said to be the most perfect of the three running on Cerro Gordo ore, is shut down for five or six days, while waiting for slag.

BELSHAW'S.—This furnace was closed last week for a short time, the hoiler having been burned through, after a run of thirty-seven days. Damages are being repaired, and the works will soon be in operation again. There are now 1,000 bars of bullion, waiting shipment, while at Beaudry's there are 6,100 bars on hand.

BULLION.—During the week ending Saturday, Feb. 21, there were shipped from Cerro Gordo eighteen lodes of bullion, averaging 10,000 pounds to the team.

COLUMBUS.—Affairs are assuming a lively phase, valuable discoveries being made every day. The average result of the ore worked at Col. Young's mill for the season will amount to \$600 per ton net. Mr. Hanks has recently refused \$30,000 offered by San Francisco parties for his mine, the Monte Diablo.

MARIPOSA COUNTY.

SALE OF MINES.—*Gazette*, Feb. 24: The old Whitlock and Sherlock property, which has lain idle for six years, has been transferred to Stephens & Lamber. They will repair the mill at Whitlocks, putting in new batteries, and will put a sufficient portion of the mine in working order. We understand that the sale is not absolute, but that Stephens & Lamber contract

to day \$20,000 for the property, if after working it eight months they shall be satisfied with it.

NEVADA COUNTY.

SENSIBLE MAN.—*Transcript*, Feb. 22d: Howell Thomas, who drew the \$50,000 in the Mercantile Library lottery, has in company with Evan Eveus and others purchased half of the Trust and Hope ground, paying therefor \$19,000. The ground is near Kate Hayes Flat, Bridgeport. It is not opened yet, and its value is owing to the fact that it is upon the well developed gravel channel.

THE STORM.—Same of 25th: The advantages of this heavy snow fall to miners cannot be overestimated. Their operations along the snow line may be impeded for a time, yet the snow will give a supply of water that will last far into the Summer, and keep the reservoirs and ditches full.

MANHATTAN MINE.—*Gazette*, Feb. 25th: Work in the mine we understand, progresses favorably. The main shaft is down 180 feet. The ledge at this depth is fifteen inches wide and prospects well.

RICH ROOK.—*Grass Valley Union*, Feb. 22d: The Green Mountain mine, owned by Biggs and Sims has turned out splendidly. Several miners have been taking rock from the croppings on shares, and Friday a crushing was cleaned up. There were crushed fifteen loads of rock, and the gold was worth in Grass Valley \$3,753, or \$250 20 to the load.

THE EUREKA.—Same of 24th: The clean up at the mill, for the two weeks' crushing ending on Saturday, yielded \$31,000.

ALTA HILL.—Same of 26th: The Altoona Co. have formally accepted the shaft sunk by M. Jeffery. This shaft is 203 feet deep and has cost \$3,000. A sump is to be excavated, which will be horizontal. There is money in the treasury, and breasts can be opened out into "once diggings;" but it is preferred at present to run bed rock tunnels so as to safely open the mine and to develop it for future economical working. The company think they are in a regular channel of gravel. The Home Co. are pushing their works with all dispatch. Their four-stamp battery is paying well, crushing gold bearing cement. The drift west has been extended and has developed very rich gravel.

PLACER COUNTY.

SHIPLEY.—*Herald*, Feb. 25th:—This mill made a clean-up, after crushing 116 tons, on Tuesday, and found one hundred and fifty-nine ounces of pure gold, or fully \$22 per ton. This rock was from the 50-foot level. This Company, John McFadden & Co., have down fifty feet two shafts, 240 feet apart, and a drift running the whole length between. This opens up the claim so that they now have 1500 or 1600 tons of quartz ready to stope out, and can take it out as fast as the mill can crush it running night and day. The mill is a new and complete ten-stamp one just finished, and the mine is just being got in working shape. The ledge is from two to three feet thick, indeed there are two ledges, the Trouble and Shipley connecting on the ground. Mr. McFadden will now run the mill and mine night and day, without any stoppage, except to clean up. The ledge passes at the surface along a ridge 150 feet higher than the mill, and only a few rods from it, and when the tunnel is run in from the mill to the ledge, thousands of tons of ore can be run directly from the mine to the batteries. This mine is five miles west of Auburn on Doty's ravine.

RICH STRIKE.—On Friday of last week, John Dillon while sluicing in his surface mine at Rock Creek above the Nevada road, three miles from here, stripped a very heavy ledge of rich quartz, tons of which show free gold in profusion to the naked eye. Some of the specimens which we saw would yield fully \$1,000 per ton.

THE WEATHER.—The storm has been of vast advantage to the miners. Heavy snow has fallen low down in the mountains and foot-hills, which will serve to supply water to the miners late in the summer, thus giving them, we hope, a long and prosperous season.

DROPPING.—The lessees of the Ceresus mine on Baltimore ravine have had milled at Pugh's mill at Ophir ninety tons of quartz, which yielded only \$900 or say \$10 a ton. Former crushings run from \$17 to \$30.

MORE RICH QUARTZ.—*Star and Stripes*, Feb. 23:—Within the past week we have been permitted to inspect two specimens of very rich gold bearing quartz rock; one from the Rising Sun ledge, near Colfax, and the other from a ledge on Rock Creek, owned by S. Dwyer, and others.

SAN DIEGO COUNTY.

FROM THE MINES.—*Union*, Feb. 16th:—Mr. McMechan's mill recently cleaned up

its first crushing since removal to San Felipe Cañon, and the bullion will be sent forward to San Francisco by Pauly & Sons per next steamer. It amounts to one hundred and thirty-two ounces, and was obtained from eighty tons of ore from the Redman mine. McKean & Co. are putting in a 10-stamp mill. Their mine is paying well all the time. Parson's mill is running steadily on Helvetia ore. The vein increases in size and richness as the shaft goes down. All the mines are looking up. The prospects are brighter than at any time since the first pick was struck.

LASSEN COUNTY.

BIG VALLEY.—*Cor. of Shasta Courier*, Feb. 25th: The diggings are nearly worked out, and no new discoveries of consequence have been made. Ehlers & Co. have taken about \$5,000 out of the original discovery claim, but their expenses have been heavy, and the best of the ground is worked out.

SHASTA COUNTY.

FORT CROOK.—*Courier* Feb. 25th: A large quartz ledge has recently been discovered on the mountain divide between Fall River and Big Valley. The croppings are said to prospect fifty cents per pound.

TRINITY COUNTY.

MINERSVILLE.—*Journal* Feb. 25th: Van Mater has worked his claim only eight days this year, but has picked up already \$400. He brought in four specimens weighing in the aggregate over nine ounces.

NEW DIGGINGS.—Thos. Stephens & Co. have discovered good drifting diggings on Virgin Point just above Junction City. Six ounces were taken out for the first four days work and the claim has since been paying from \$6 to \$8 per day to the hand.

Nevada.

COPE DISTRICT.

ITEMS.—Owyhee *Avalanche* Feb. 11th: The Vance mill has been leased to P. F. Davis, who intends replacing the grading machine with stamps. . . . It is reported that a Chicago Co. will put up a mill at Bull Run early in the spring. . . . The Argenta Co.'s new shaft is down 130 feet, and they are sinking 3 feet per day. . . . A San Francisco Co. are running a tunnel into California Hill.

Same of 18th: Samuel Heudy is prosecuting work on the Pride of the West, and taking out fine ore. . . . The El Dorado ledge, idle since its discovery, a year ago, is being worked by W. Hays & Co.

ELY DISTRICT.

BULLION.—*Record* Feb. 16th: The shipments for the week ending February 14th, amount to \$84,567.91.

Same of 19th says: We have had no mining review lately on account of sales being made and numerous disputes as regards titles and we do not wish to make any statements conflicting with either party.

COMPROMISE.—Mr. Lightner, of the Raymond & Ely Co. pays to McCannou & Co. \$6,000 for a fraction of mining ground between the Creole shaft and the East shaft on the Washington. The title was in dispute between the two companies.

FLOOD, COURTNEY & Co. are taking out ore from the Washington mine that will go \$300 a ton. Their contract with the Washington runs until the first of May. By that time the boys will make a good thing out of it.

EUREKA DISTRICT.

PALISADE.—*Sentinel*, Feb. 25th:—During the first twenty days of this month, the Railroad Co., has shipped twenty-four car loads of base bullion, containing twenty thousand pounds each. Wells, Fargo & Co., have in the same twenty days, shipped five hillion of the value of \$88,504 09.

SALE.—John Capron has just completed the purchase of the El Dorado mine. The assays made by Lundbom, gave from \$45 silver and \$55 gold, to \$246 silver; and \$200 gold per ton.

MINERAL HILL.—The Grass Valley Union of 25th notes a letter from Jas. Noel, who is at work for a Grass Valley company, and has leased a ledge which is turning out rock assaying \$1,936 to the ton. A new 15-stamp mill started up on the 19th.

HUMBOLDT.

PROSPECTING.—*Silver State*, Feb. 25: A party which has been out to look at a ledge eight miles west of Hot Springs, which was prospected some time ago, but is now made more accessible by the railroad, brought in rock from it which assays \$300 to the ton in silver.

BULLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last, was 667 pounds, valued at \$5,833.

SHIPPING ORE.—We understand that the Silver Monarch and Locomotive companies have, during the past week, brought in

from Central 30 tons of high grade ore, to be shipped to Reno for treatment. Locomotive ledge is said to have widened six feet. Clark & Brothers are the owners.

STAR CITY.—The Antimony ledge, owned by Cunningham, O'Donnell and the Spence Brothers, is looking better than ever. Work of development is rapidly going on.

RYE PATCH.—The Butte mill works well. It will shut down March 1st to receive five more stamps.

WHITE PINE.

REVIEW.—*News*, Feb. 25th: The severe storm, raging the whole week, has so far affected the working of our mines as to compel the suspending of work where there was insufficient shelter. In all the deep workings of the principal mines, however, work has gone on without cessation from that cause. The four mines connected with the new International mill have now but 12 men employed, for the reason that the mines are full of ore. The dumps are full, and there is no chance to work to advantage. There is ore enough mined to keep this mill running for six months. The tramway has been delayed by the rough weather. There are 47 stations in all for it, 37 of which are finished. At station No. 20 a ledge was discovered this week while excavating for the supports. The croppings assay \$700 to the ton, and show a ledge three feet in width. It is named the "Sharp." The ore is similar to that of the Eberhardt. All mines on the hill that are working continue to improve in appearance. The few base metal mines working show promising prospects. The Bismuth has a large body of ore in sight, easily extracted. There has been but little work done on the west side of White Pine mountain this week. The snow on top is four feet deep, and work in open cuts is necessarily suspended. It is reported that a number of the most prominent mines on the west side are to change hands soon, and be owned and worked by one company.

WEEKLY SHIPMENT.—Wells, Fargo & Co. shipped, during the last week, from this city, 19 bars bullion, valued at \$23,640.48—produced by mills in this district.

ITEMS.—The ores from the Ward Beecher are worked at the Oasis mill, which turned out \$38,000 worth of bullion last month. The pulp assays at the mill average \$140 per ton. . . . A chamber in the North Aurora, filled with waste rock, has been recently cleared out, and showed a large body of ore that assays \$400 per ton. Eberhardt has out 200 tons very rich rock. . . . Richer ore than ever has been struck in the General Lee.

WASHOE.—*Savage*, Feb. 26th: The daily yield is 120 tons, from the old and new mines. On the 9th level, the north drift is continued and cross-cuts being made east. Nothing of value has yet been found. On the lowest level the south drift is now 220 feet south from the shaft; no ore found.

CHOLLAR-POTOSI.—The yield during the week was 1,910 tons, of which 1,650 was sent to mills. The average assays have been \$62 20. The Belvidere section is looking as usual, and all the ore breasts yield as well as ever. Yesterday they sent to San Francisco \$58,666 in bullion.

HALE AND NOBACROSS.—The product during the week was 1,600 tons of ore—principally blue ore from the lower level. The south stope in the new ore-body in the southern part is extensive, and is yielding excellent ore.

BELCHER.—This is somewhat improving in appearance. About the usual ore is extracted. It is likely that the rich body of ore in the Crown Point will run into it.

SIERRA NEVADA.—The mine is yielding as usual, and both the Sierra Nevada and Sacramento and Meredith mills are in constant operation.

OPHIR.—The "up-rise" from the south drift near the Central is up 200 feet. Nothing done in other parts of the mine. It is expected that paying ore will be found in raising into the new ground above.

OVERMAN.—The usual amount of ore is coming from the mine. The suit between the Overman and the American was yesterday decided in favor of the latter company.

CROWN POINT.—There is a great improvement in the new body of ore on the 1,100-foot level as it is followed south. The drift on the 1,000-foot level has connected with the raise from the 1,100-foot level. The mine is looking well throughout.

DANEY.—The drift from the engine shaft is in 85 feet 6 inches. The ground has much improved. The prospects generally are favorable. The old mine is fast being drained.

VIRGINIA CONSOLIDATED.—The north-west drift from the main vein is in 210 feet, and passing through porphyry and

quartz. A good deal of water is coming in. **SEGREGATED BELCHER.**—There is nothing being done at present. The dumps are full of ore, but the mill on the river is not running.

YELLOW JACKET.—*Gold Hill News*, Feb. 25th: This mine continues its regular yield, and prospecting goes on as usual at the lowest levels. We saw yesterday about a dozen silver bricks, the largest worth over \$3,000. They were from the Yellow Jacket mine, there is plenty more material for just such bricks.

IMPERIAL.—The old upper portion of the mine is temporarily shut down, the dumps being full of ore. The new shaft being sunk jointly by the Imperial and Empire companies, is progressing with excellent prospects. The lowest level of all, 1,300 feet,—shows better indications than those above. The bottom of the shaft is now 40 feet below this level.

BAY STATE MILL BURNED.—The mill, at American Flat, was totally destroyed by fire on the 23d. It has been idle for the last few weeks. The fire was accidental. The mill was the property of the Union Mill and Mining Co., and worth between \$60,000 and \$70,000. It was insured for \$40,000.

Idaho.

ITEMS.—*Arbutus*, Feb. 18th: Some parties prospecting for quartz above Shuster & Co.'s placer claims in Blue Gulch, have a tunnel in 18 feet. Mr. Cassell has superceded Pheby, as Sup. of the Mahogany. Wells, Fargo & Co. shipped this week 10 bars of bullion, valued at \$25,758. Golden Chariot bullion to the amount of \$24,000 was shipped to San Francisco this week. Total shipments during January, \$136,491.

CONSUMMATED.—It is stated that the negotiations for the sale of the Atlanta ledge in Alturas county have been closed, and the mine is now owned by an English Company.

SALMON RIVER COUNTRY.—*Cor. of Helena Gazette*, Feb. 20th: On Moose Creek, parties prospecting "The Meadows," have struck bed-rock at a depth of twenty feet, and four feet of dirt that prospects from one to five cents, in one shaft twelve cents to the pan. Smith & Gordon, have moved their stock of goods over there, and are constructing a drain that will cost several thousand dollars.

BOISE COUNTY.—*Statesman*, Feb. 23d: Col. Stevenson, of Pioneer, states that there is a prospect for a goodly supply of water, and a lively mining campaign. Around Pioneer there has been a larger snow-fall than for many years. Col. Stevenson is one of the proprietors of the Portuguese claims, and is well satisfied with his prospects. He says that quartz is also looking up. Clarkson and Brown, of the Summit Flat lead, are taking out quartz of remarkable richness.

Montana.

BROWN'S GULCH.—*Cor. of Helena Gazette*, Feb. 20th: Duffey & Co. have struck a rich vein in Merrill & Ullery's claim on the Comanche, near the surface. It measures four feet in width, and occupies about half the crevice. Brown Bro. and Landis are working discovery of Comanche, and taking out two to five tons of pay rock per day. Merrill & Ullery are sinking a shaft on the Ben Franklin, and are down 40 feet. The St. Louis Co. are taking first-class ore from the Hope shaft. The Speckled Trout and smelting works of the Sanders Co. are still idle. The mill (Stewart) has averaged \$52 per ton since it commenced running—all on second-class ore. The cost of mining and hauling at this season is probably \$6.50. The cost of milling, with the present machinery, say \$15.

THE STORM.—The *Herald* of 16th says: We are of opinion that the storm has been general. If such is the case, a glorious season is guaranteed to Montana. If water be plenty, more gold will be taken from the ground during the summer of 1871 than during any previous year. Thousands of miners stand ready to use the water from miles of new ditches.

THE MONTANIAN of Feb. 16th says:—Our flume men are perfectly satisfied that we will have an abundance of water for the next mining season.

QUARTZ CREEK.—*Cor. of Missoula Pioneer*, Feb. 16th: Bed rock has been reached on claim No. 17 below discovery. In the upper district as high as \$18 per day is being cleaned up. The boys are in high spirits.

SALE.—*Independent*, Feb. 18th: Mr. R. Prince, of Henderson gulch, sold last week claim No. 3 on the Cable lode to Smith, Milliken & Cameron for \$2,100.

GERMAN GULCH.—*Cor. of same*: Several companies are drifting with fair success. The California Flume Co. is doing, per-

haps, the best. James Korr and Wright, Jones & Co. are opening the deep ground between the Edwards and California Co.'s flume.

Colorado.

CARIBOO MINE.—*Central City Herald*, Feb. 18th: The Co. are working 14 men at the east end. The pay vein is 12 to 30 inches wide. This ore is placed in sacks before it is taken from the mine. The Company cleared \$6,600 on the ore sent to Hill's in the three months ending January 1st, over all expenses of working the eastern portion of the mine, building, &c., and have a large portion of low grade ore on the dump. Breed & Cutter at the West end, have plenty of fine looking ore in sight. The main shaft is 150 feet deep, where the crevice is five feet wide with a large proportion of shipping or first and second class ores. The whole mine is looking remarkably well, and continues to hold its rank as the largest producing silver mine of Colorado. When smelting works are erected near by, the immense quantities of low grade ore which this mine produces can be treated, saving heavy shipping charges to Black Hawk.

BLACKAWK.—*Register*, Feb. 22d: Nearly all the mills that have a supply of water are full of business, many of them having more ore offered than they can receive. The number of stamps in actual operation is 402. The larger part of the ore is mined in Nevada district, though the Gregory 2d is producing constantly, and some comes from Bottell hill. All the mills in Nevada that have water, less than a hundred stamps, are of course in full operation.

THE KANSAS.—Mr. Bennett is now raising 18 or 20 cords of mill ore per week, that runs some of it as high as nine ounces per cord. The proportion of smelting ore is one ton to three cords, when sorted for high grade. The assay of the smelting ore has varied from \$94 to \$104 per ton.

GEORGETOWN.—*Miner*, Feb. 16th:—Two tons Ogden ore brought at Stewart's \$389. Shaft on the Willow lode is 82 feet deep, and the vein carries 8 inches of ore that will assay 400 ounces per ton. Nitro lode is looking well in the west drift. We have been shown a magnificent specimen of ore from the Snowdrift lode. It was a solid "chunk" of sulphurets, and is estimated to contain silver \$3,500 per ton. Ore from the Alabama, 1,600 lbs., was sold to Stewart for \$178. Cornucopia lode has a 42-foot shaft and assays \$200 per ton. Stewart Reducing Co. shipped \$5,889 for six days' run. The Shafter mine has one foot of ore that will run \$500 per ton, gold. At Empire, Ball's 12-stamp mill is crushing ore from the Howard and Silver mountain lodes.

Same of 23d: The Brown lode has a remarkably large and rich body of ore in the deep shaft. The Chester county lode, now being worked by Mr. McAfee, is yielding ore assaying as high as 635 ounces per ton. Stewart Co. shipped \$4,438, the product of 2d class Terrible ore. Two and a quarter tons Pelican ore brought \$393. Howard lode, Empire, has 5 feet solid "iron" uncovered. Munsell ore, 2,800 lbs., sold to Stewart for \$503. Rich ore and plenty of it in the Clift mine. In the Seaton mine, 303 tons ore mined in 1870 gave \$65,500, coin value, by mill treatment.

STOCKING CREEKS WITH FISH.—It is well known that all the creeks in this section which do not connect with the Humboldt river are destitute of fish. Reese river and some of its tributaries are the only ones where fish is to be found. With little trouble every creek in the country could be stocked with trout, for the experiment has been tried and proved successful. Last year Mr. Riette and others, brought to Grass Valley from Reese river a lot of the trout common in that stream and placed them in skull creek, near the ranch of Mr. Callahan. They have been left undisturbed till now, and Mr. C. informs us that fair fishing can be had in the creek at present. Let persons living on the banks of creeks emptying into Smoky Valley, and others not connecting with the Humboldt river imitate this example. —*Elko Independent*.

DRIED ANTELOPE.—The *Deseret News* says that Messrs. Hunt & Smith, of Salt Lake are shipping several tons of dried antelope and elk meat to this city. The animals were killed near Carbon, last summer, the place on the Central Pacific Railroad, where the coal mines were recently reported on fire.

The merchants of Santa Barbara propose to establish a Chamber of Commerce.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., March 2.

The mining share market has been quite lively during the last work and several descriptions of stock have fluctuated considerably. Belcher, Crown Point and Kentuck having been subjected to a very considerable rise. Amador has been quoted two or three times at \$327½ and \$325 and \$340. Overman has suffered from an adverse decision in a suit with the American Mining Company. This morning there was an upward tendency in almost every description of stock. Belcher went higher than it has been for a year, and Crown Point touched its highest figure since June, 1869. Kentuck also went very high.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Price, Feb. 23.	Highest.	Lowest.	Mar. 2.	Adv.	Dec.
Alpha Cons.	54	54	54	18	—
Belcher	16	26	15	34	18
Chollar-Potosi	74	74	74	26	—
Crown Point	45	64	41	25	29
Eureka Cons.	11	12	11	—	—
Golden Chariot	72	75	71	73	1
Gould and Curry	43	46	38	47	4
Hale and Norcross	97	97	91	94	—
Ida Elmore	8	8	8	—	1
Imperial	5	8	5	10	5
Kentuck	40	62	40	71	31
Meadow Valley	24	24	22	—	—
Ophir	6	6	6	7	1
Orig. Hid. Treas.	3	3	3	—	—
Overman	5	5	2	4	—
Savage	43	43	39	38	—
Sierra Nevada	14	14	12	12	—
Yellow Jacket	43	44	42	44	1

Latest Prices.

(S. F. Stock and Exchange Board.)

BID.	ASKED.	BID.	ASKED.
Alpha Cons.	—	Ida Elmore	84 7/8
Amador	\$340	Imperial	84 1/2
Belcher	32 1/2	Kentuck	70 1/2
Chollar-Potosi	74 1/2	Kentuck	22 1/2
Crown Point	44 1/2	Ophir	6 1/2
Daney	61 1/2	Orig. Hid. Treas.	3 1/2
Empire Mill	12 1/2	Overman	3 1/2
Golden Chariot	72 1/2	Savage	43 1/2
Gould & Curry	46 1/2	Sierra Nevada	14 1/2
Hale & Norcross	94 1/2	Yellow Jacket	44 1/2

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DATE
Alpha Cons., G. H. Mar. 1, \$1.	April 5—April 24	—
Belcher, G. H. Mar. 16, \$1.	Mar. 2—April 10	—
Chollar-Potosi, G. H. Mar. 16, \$1.	Mar. 2—April 10	—
Confidence, G. H. Feb. 6, \$3.	Mar. 13—Mar. 12	—
Cons. Virginia, Feb. 27, \$1.	April 3—April 25	—
Daney, Nevada, Jan. 10, \$1.50.	Feb. 14—Mar. 4	—
Deep Spring, Inyo Co., Jan. 14, \$1.	Feb. 25—Mar. 12	—
Meade and Nevada, S. Bar. Co., Feb. 8, \$20.	Apr. 4—Apr. 10	—
El Refugio, Santa Cruz Co., Jan. 18, \$50.	Feb. 21—Mar. 14	—
Gould & Curry, Va City, Feb. 23, \$12.50.	Mar. 30—	—
Imperial, H. Feb. 8, \$10.	Mar. 7—Mar. 24	—
Kentuck, G. H. Jan. 17, \$17.	Feb. 20—Mar. 10	—
Kincaid Flat, Tuol. Co., Jan. 12, \$2.50.	Feb. 16—Mar. 4	—
Mammoth, W. P., Jan. 31, 10c.	Mar. 10—Mar. 31	—
Marble Falls, Nye Co., Nev., Feb. 6, 25c.	Mar. 9—Mar. 27	—
Maxwell, Amador Co., Dec. 21, \$2.	Feb. 7—Mar. 7	—
Mountain City, Nev., Feb. 18, 25c.	Mar. 27—April 17	—
Nevada, Nevada, Jan. 19, 25c.	Feb. 20—Mar. 13	—
Noonday, Nevada, Jan. 19, 30c.	Feb. 23—Mar. 17	—
North America Cons. M. Co., Feb. 15, 5c.	Mar. 29—Apr. 27	—
Orig. Hid. Treas., W. P., Jan. 31, \$1.	Mar. 6—Mar. 31	—
Ophir, Placer Co., Dec. 13, 40c.	Feb. 6—Feb. 27	—
Ophir, Virginia City, Jan. 11, \$2.	Feb. 14—Mar. 7	—
Placer, Placer Co., Jan. 4, \$6.50.	Feb. 15—Mar. 11	—
Rogers, Storey Co., Nev., Feb. 13, \$1.25.	Mar. 20—April 17	—
Seg. Belcher, G. H., Jan. 14, \$2.	Feb. 10—Mar. 8	—
Saylor, El Dorado Co., Jan. 1, 50c.	Mar. 6—Mar. 27	—

MEETINGS TO BE HELD.

Daney	Annual Meeting, Mar. 6
Globe	Special Meeting Mar. 13
Golden Chariot	Annual Meeting, Mar. 6
Hale and Norcross	Annual Meeting, Mar. 8
San Marcial	Annual Meeting, Mar. 21
Silver Sprout	Special Meeting Mar. 20
Virginia	Annual Meeting, Mar. 14

LATEST DIVIDENDS—(Within Three Months).

Black Diamond, 1/2 pt. et.	Payable Mar. 6
Chollar-Potosi, \$5.	Payable Feb. 10
Chollar Potosi, \$5.	Payable Feb. 15
Eureka, div. \$2.	Payable Feb. 7
Eureka Cons., \$1.	Payable Feb. 20
Golden Chariot, div. \$6.	Payable Feb. 10
Hale & Norcross, div. \$5.	Payable Feb. 10
Meadow Valley, \$1.	Payable Feb. 10
Nakoma, div. 1 pt. et.	Payable March 6
North Star, \$3.	Payable Jan. 10
Sierra Nevada, div. \$1.	Payable Jan. 16
Yellow Jacket	Payable Feb. 10

*Advertised in this journal

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

IRON.—Duty: Pig \$7 1/2 ton; Rolled Bar, \$8 1/2 ton.	FRIDAY, March 3d, 1871
10c lb. Sheet, polished, 3c lb. common, 1 1/2 c lb. 3c.	—
10c lb. Sheet, 1 1/2 c lb. Pipe, 1 1/2 c lb. Galvanized, 2 1/2 c lb. 3c.	—
Scotch and English Pig Iron, 10c lb. ton.	\$34 00 @ \$33 00
White Pig, 10c lb. ton.	—
Reinforced Bar, good assortment, 10c lb. ton.	—
Reinforced Bar, good assortment, 10c lb. ton.	—
Boiler, No. 1 to 4.	—
Plate, No. 1 to 4.	—
Sheet, No. 10 to 13.	—
Sheet, No. 14 to 29.	—
Sheet, No. 21 to 27.	—
Copper.—Duty: Sheetings, 3 1/2 c lb. Pig and Bar, 2 1/2 c lb.	—
Sheeting, 3 1/2 c lb.	—
Sheeting, Yellow.	—
Sheeting, Old Yellow.	—
Composition Nails.	—
Composition Bolts.	—
TR. PLATES.—Duty: 2 1/2 c lb. 3c lb. 4c lb.	—
Plates, Cast Iron, 10c lb. box.	12 00
Plates, I O Charcoal.	10 00
Roofing Plates.	10 00
Ranch Plates.	10 00
STREET.—English Cast Steel, 10c lb.	—
QUICKSILVER.—10c lb.	—
LEAD.—Pig, 10c lb.	—
Sheet, 10c lb.	—
Pipe, 10c lb.	—
Bar, 10c lb.	—
ZINC.—Sheet, 10c lb.	—
BORAX.	—

San Francisco Market Rates.

Wholesale Prices.

Sugar, crushed, 10c lb.	FRIDAY, March 3d, 1871.
Do. Hawaiian	13 1/2 @ 15
Do. Costa Rica	13 1/2 @ 15
Do. Rio	13 1/2 @ 15
Tea, Japan, 10c lb.	19 @ 19 1/2
Do. Green	20 @ 21
Hawaiian Rice, 10c lb.	8 1/2 @ 9
Chit, 10c lb.	8 1/2 @ 9
Coal Oil, 10c gallon.	50 @ 51 1/2
Candles, 10c lb.	14 @ 15
Crushed Butter, 10c lb.	30 @ 31
Crushed Butter, 10c lb.	25 @ 26
Cheese, California, 10c lb.	9 @ 10
Eggs, 10c dozen.	27 1/2 @ 28 1/2
Lard, 10c lb.	11 @ 12
Ham and Bacon, 10c lb.	14 @ 15
Shoulders, 10c lb.	9 @ 10

Retail Prices.

Butter, California, fresh, 10c lb.	40 @ 50
Do. pickled, 10c lb.	25 @ 30
Do. Crisco, 10c lb.	20 @ 25
Cheese, 10c lb.	20 @ 25
Honey, 10c lb.	40 @ 45
Eggs, 10c dozen.	27 1/2 @ 28 1/2
Lard, 10c lb.	11 @ 12
Ham and Bacon, 10c lb.	20 @ 25
Crushed Butter, 10c lb.	75 @ 80
Potatoes, sweet, 10c lb.	2 @ 3
Tomatoes, 10c lb.	— @ 2
Onions, 10c lb.	2 @ 3
Apples, No. 1, 10c lb.	4 @ 5
Pears, Table, 10c lb.	4 @ 5
Plums, dried, 10c lb.	10 @ 12
Peaches, dried, 10c lb.	10 @ 15
Oranges, 10c dozen.	50 @ 75
Lemons, 10c dozen.	50 @ 75
Chickens, apple, 10c lb.	75 @ 1 00
Turkeys, 10c lb.	70 @ 75
Soap, 10c lb.	11 @ 15
Soap, Castile, 10c lb.	13 @ 20

Produce, Etc.

Flour, Extra, 10c bbl.	6 75 @ 6 87 1/2
Do. Superfine.	5 75 @ 6 00
Corn Meal, 10c 100 lbs.	2 1/2 @ 2 35
Wheat, 10c 100 lbs.	2 25 @ 2 40
Oats, 10c 100 lbs.	1 50 @ 1 75
Barley, 10c 100 lbs.	1 35 @ 1 40
Beans, 10c 100 lbs.	1 87 1/2 @ 2 00
Peas, 10c 100 lbs.	1 60 @ 1 75
Hay, 10c ton.	10 00 @ 12 00
Live Oak Wood, 10c cord.	10 00 @ 15 00
Beef, extra, dressed, 10c lb.	8 @ 12
Sheep, on foot, 10c lb.	2 00 @ 2 50
Hogs, on foot, 10c lb.	7 1/2 @ 8
Hogs, dressed, 10c lb.	7 1/2 @ 8

New York Metal Market.

[OBSERVED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Feb. 18, 1871.

IRON.	IRON.	IRON.
Pig, Scotch, No. 1 (cast), per ton.	\$30 00 @ \$34 00	—
Pig, American, No. 1 (cast).	30 00 @ 30 00	—
Pig, American, No. 2.	26 00 @ 28 00	—
Swedish, ordinary sizes.	110 00 @ 120 00	—
Common.	72 50 @ 77 50	—
Refined.	75 00 @ 80 00	—
Rods.	82 00 @ 117 00	—
Horse-shoe.	95 00 @ —	—
Hoop.	100 00 @ 140 00	—
Scrap.	97 50 @ 130 00	—
Nail-roads, per lb.	7 @ —	—
Spring.	7 1/2 @ —	—
Tire.	7 1/2 @ 8	—

STEEL.

Bars, best cast, warranted, per lb.	18 @ —	19 1/2
Sheet, best cast.	18 @ —	—
Sheet, second quality.	15 1/2 @ —	—
Sheet, third quality.	13 1/2 @ —	—
Slab-plates, circular.	23 @ —	—
Double-plate, warranted.	18 @ —	—
Single-plate.	18 @ —	—
Montague & Co. (cast bars).	15 1/2 @ —	—
Machinery, round.	12 @ —	—
German, best.	11 @ —	—
German, goat.	10 @ —	—
German, eagle.	9 @ —	—
Blister, warranted.	14 1/2 @ —	—
Blister, common.	10 @ —	—
Jessop & Sons', common.	17 @ —	—
Double-refined.	26 1/2 @ —	—
Stone-ax shapes.	26 1/2 @ —	—

SUNDRIES.

American Lead, per 100 lbs.....	7 50	@	8 00
German.....	7 50	@	8 00
Bar.....	8 50	@	9 00
Pipe and Sheet.....	8 50	@	9 00
Muselman and Amer. Zinc, per lb.....	— 9	@	— 9½
Antimony.....	— 16	@	— 17
Spelter.....	— 7	@	— 7½
Copper, old.....	— 17	@	— —

Leather Market Report.

[Corrected weekly by Dolliver &

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING FEBRUARY 14th.
PRINTING-PRESS.—Amos H. Bangle, Brooklyn, Cal.

LAMP-BRACKET FOR SEWING-MACHINES.—Henry Campbell, San Francisco, Cal.

HUB AND AXLE.—Carlos R. Donnar, Sonoma, Cal.

LUBRICATOR.—Nicholas Seibert, San Francisco, Cal.

LOCOMOTIVE-BOILER FURNACES.—Andrew Jackson Stevens, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

HAY AND OTHER PRESSES.—M. T. Northrup, Hornitos, Cal. The object of this invention is to provide an improved press for packing hay for transportation, and for wool or cotton. The press consists of a strong frame or box which lies on the ground, so as not to rise to an inconvenient height. A follower is arranged to move forward and back within the box. After the cords are laid, the box is filled with hay, the door at the top closed and drawn down tightly by a peculiar elbow lever, and the follower is moved by a long lever operating in a horizontal plane, one end being pinned to the follower, while the fulcrum is on a block or guide a short distance from this end. The guide moves in ways at right angles with the movement of the follower, so that as the lever is moved around, it carries the guide across the line of travel of the follower, until the outer end of the lever, the block and the follower are in a line with the plane in which the follower travels, and the follower is thus driven in so as to press the bale completely. The bale is then tied and rolled out by a side door, the lever returned to its former position, and the press again filled. By this construction, it is claimed, an excellent device can be built much more cheaply than can other forms. The power brought to bear on the bale is very great, and the labor of filling the press is comparatively light, and the whole device seems very convenient.

SEED SOWER.—S. H. Sheplar, S. F., Cal., and W. G. Conklin, Portland, Oregon. For sowing small grains, such as wheat, this revolving seed-sower seems to possess a number of advantages. It consists of a perforated cylinder, made in two parts, into each of which the grain is fed from an intermediate hopper, a peculiar trough serving to divide the grain as it falls from the hopper and convey it equally into both ends of the cylinder. In each part of the cylinder is fixed a spiral flange, which serves to convey the grain towards the ends and to distribute it equally, so that the sowing will be evenly accomplished at every portion of the length of the cylinder. The device is very simple, and is worthy of attention.

REIN-HOLDER.—W. Barstow, S. F. This simple but ingenious device consists of two vertical leaves or plates with upper edges so constructed as to present a gradually widening mouth into which the reins can be readily introduced. In the side of one of the plates is an opening to a chamber which is made narrower at its front than at its rear end. In this chamber is placed a ball of such a size that it will partly protrude into the horizontal slot between the two leaves. This ball may be held in place, so as to prevent any motion when not in use, by a spring. A cylinder may be used instead of a ball if desired. The holder may be fastened to the dashboard. When it is desired to secure the reins, they are placed together and introduced between the leaves. By drawing them a little way back, they move the ball so as to lie between it and the opposite leaf, but a forward movement causes the ball (as the chamber is narrower at the front) to bind them tightly. The whole affair is very simple and cheap and recommends itself highly for practical use.

POULTRY NOTES.

POULTRY AS A BUSINESS.

The Antioch (Contra Costa) *Ledger* very truly says: "If a man has a well-conducted chicken ranch in these days he can make money. Eggs are high, and will be higher still, before the winter is over, and chickens and ducks always have a good marketable value about holiday time—in fact they find sale at fair prices any time. A few acres of land with four or five hundred dollars, can be made to yield a good income, more than if put to any other use, and we cannot understand why farmers do not pay more attention to this profitable business. A dozen eggs is worth more here than a bushel of wheat in the Western States, and can be produced with less trouble and risk. Care and attention are requisite, to be sure, to make success certain, but no more than in any other business. There are plenty of places in this vicinity which cannot be advantageously used for any other purpose. Rabbits, frogs and terrapins will pay well, too. We have known fortunes to be made in this business with a small outlay of capital. We expect some day to see farmers paying more attention to poultry raising."

POINTS OF POULTRY.

A subscriber asks us to give the appropriate terms for the different points of poultry, so that they may be understood. To more fully illustrate the answer to the



query, we give herewith, from Moore's *Rural New Yorker*, an engraving of a cock with the points marked. A, neck-hackle; B, saddle-hackle; C, tail; D, breast; E, upper wing coverts; F, lower wing coverts; G, primary quills; H, thighs; I, legs; K, comb; L, wattles; M, ear lobe.

DETERIORATION OF POULTRY.

A correspondent of the *Poultry Bulletin*, gives the following as one of the chief causes of the deterioration of poultry: The majority of farmers have always considered Poultry of little or no consequence, and they have allowed them to run wild and take care of themselves and degenerate from year to year. They generally let them roost in their pig pen, or on their wagons, or wherever they can find a place. They seldom if ever feed them, and allow them to make their nests wherever they can, all over the premises. When they hatch and make their appearance with their chickens the farmers wives and children feed them occasionally. But they very rarely coop them and keep them out of the wet grass or feed them regularly, in consequence of which, fully seventy per cent die; of those that are raised, the largest and best are selected and sold, as they are thought to be worth too much to keep, and the culls which are not good enough to sell, are kept and bred from the following season. This results in reducing the size of poultry and eggs to an alarming degree, so that the farmers' chickens and ducks average from two to four pounds, turkeys and geese from six to eight pounds, and eggs 10 to the pound.

A certain economical doctor is so penurious that when he goes to make a call in the country he take a hen in his gig to eat up the oats his horse scatters when eating. The hen knows her business so well that she gets right out and goes to work without being told.

POULTRY RAISING.

Why Hens must be kept in Small Flocks.

Whenever we try to make any animal live contrary to its habits in a wild state, nature, unwilling to be thwarted, will have its revenge in some way. The hen originated in the jungles of India, and when wild and before taken from its native forest, this variety of bird had an abundance of pure air to breathe and plentiful ventilation through their leafy roosting places. One leader, only, accompanied the flock, who allowed no rival in his family.

With proper care a large number of chickens may be raised together; but when they begin to lay, if their natural habits are interfered with, the keeper will fail to receive due returns, as the penalty he must pay for violating a law of nature. The natural and proper way to keep hens is to provide separate apartments for every family, and not allow the family to exceed, say 25 in number, including one male bird. Mr. H. H. Stoddard, of Hartford, Conn., writes to the *Poultry Bulletin*, upon this matter as follows:—

In the Indian jungles the wild parent stock, *Gallus Bankiva*, like all allied species of fowls that live principally upon the ground, associate during the breeding season in small families, each having its male head, and appropriating an exclusive territory for a range. This being the law, as unalterable as that of the Medes and Persians, man must respect it. For three thousand years (perhaps six,) men have successfully kept domesticated fowls. They have succeeded by scattering small flocks in every village, thus unconsciously imitating the state of things in the jungles of India. Herded together in a large multitude, the ancient instinct thwarted, they will not utterly refuse to lay, (that too would be unnatural, for the tendency to produce eggs is also deeply implanted), but the yield will not be nearly so great as if they were in flocks of tens or twenties.

Scores of illustrations in poultry-keeping might be given, where Nature resists infractions of her laws. It will not do to neglect any point, because it seems a small matter. No ordinance of Nature is small.

LARGE GEES.—The weight of the prize Toulouse geese at the last Birmingham show was 57 pounds 14 ounces for the old pair, and 48 pounds 14 ounces for the young pair. The prize gander of 1868 weighed 39 pounds.

A few years since the rearing of a pair of geese that would weigh half a hundred weight would have been regarded as an impossibility. This limit has now been surpassed and we cannot believe that the "plus ultra" has been reached. I believe a cross of the Toulouse and Bremen would make the best of all geese for market, and that the goslings would average twenty pounds each at Christmas. This would be an improvement worth making, as our common market geese now hardly average eight pounds. The change would soon take place, not only with geese, but with all kinds of poultry, if the farmers would consider the importance of the subject, and take a little pains in procuring the best varieties for breeding stock. I hope the time will soon come when poultry breeding will be considered of the importance that it justly merits.—*Cor. Poultry Bulletin.*

POULTRY TONIC.—Many breeders recommend bread soaked in ale, as a healthful tonic for fowls. A writer in the *Journal d'Agriculture Pratique*, recommends for debilitated birds, especially for young turkeys when "shooting the red," the following preparation: "Take Cassia bark in fine powder, three parts; ginger ten parts; gentian one part; anise seed, one part; carbonate of iron, five parts. Mix thoroughly by sifting. A teaspoonful of the powder should be mingled with the dough, for twenty turkeys, each morning and evening. It is of the greatest importance to begin the treatment a fortnight before the appearance of the red, and to continue it two or three weeks after."

MOULTING fowls should have a few nails placed in the water furnished for their use. The rust occasioned by the nails renders them less liable to disease.

AGRICULTURE IN ARIZONA.

Arizona produces something besides gold and Apaches. Cotton of a texture similar to the best product of the Atlantic States is produced there. The seed from this Cotton has been planted in South Carolina, where Sea Island Cotton of good quality has been raised from it. Grapes bear there the second year after setting out the slips. Tobacco, figs, oranges, lemons, sugar-cane and sweet potatoes, the finest ever seen, are raised there. Corn does not do well generally, for want of rain. Irish potatoes are grown, but not with much success; the summers are too hot and dry. Wheat and barley yield from 30 to 35 bushels and more to the acre, according to the nature of the ground and care employed in the culture. A field of 90 acres was reported, last season, to have yielded a fraction over 41 bushels to the acre. Another person reports 60 bushels of barley to the acre, and a profit of \$1,600 last season, from a small farm of only 20 acres. Farming operations there, are said to be conducted very loosely. There are many extensive and fertile valleys, where the soil needs only to be scratched to yield bountifully. The cost of harvesting grain there is set down at about \$5 per acre. Fruit trees have been taken to Arizona, for the first time, we believe, the past season, and an abundance of fruit is expected there soon—a great desideratum. A good market already exists there for the limited produce heretofore produced; and the market will increase as the county fills up with miners, as must soon be the case.

The Salinas or Salt River is described as running through a beautiful and fertile valley, 20 miles long by 5 in width, and carrying an average of fully 50,000 inches of water; all of which may be utilized for irrigation purposes. The valley is so level that fully 14 out of every 15 acres can be irrigated. The only inconvenience in the way of cultivation is the mesquit, which can be easily removed. Two irrigation ditches, one on the south and one on the north side of this river are now being constructed, the former to carry 10,000 inches and to run 12 miles; the other to carry 20,000 inches. There are numerous other localities in the northern portion of the Territory which are almost or quite as favorably situated for irrigation. The future of Arizona, both as a mining and agricultural region, is certainly most encouraging.

THE TURPENTINE BUSINESS once so profitable in North Carolina is now nearly worthless. The high price of turpentine, at the close of the war, induced many people, in that section of the country to go into the business; but as the result of five years of hard labor, the people there find themselves worse off than when they commenced. They have met with nothing but disappointment, and are now said to be reduced almost to starvation. What has become of the turpentine business of this State? We have heard but little of it for the last two or three years.

NOVEL WAY OF PRESERVING GRAPES.—The Chinese have a novel way of preserving grapes, and one which is said to be very successful. They keep them in pumpkins. The pumpkin is carefully chosen; must be ripe, and without blemish. An aperture large enough to admit of the hand is made; the inside is well cleaned, and the ripe grapes are protected by a tight cover. The grapes retain excellently their size and flavor. Perhaps so.

A GOOD SUGGESTION.—The *Prairie Farmer*, in an article on prizes at Fairs, suggests that premiums be offered for plans for saving the produce of the farm, and for making the farmers' home pleasant and comfortable. It further says it should be the aim, in making up the premium list, to offer prizes "for things that will encourage research and investigation, bring forth new facts, and reward patient industry."

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARL before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Carbonic Acid—Its Occurrence.

LECT. II. Feb. 25.—In my last lecture, said the Professor, I spoke about the most common thing in the world,—oxygen. I propose this evening to speak of another common thing, carbonic acid, which, although not so abundant as oxygen, is yet very plentiful and has some remarkable relations to animal and vegetable life.

Carbonic acid is found in the atmosphere, but in minute quantities, constituting about .04 per cent. of it. Carbonic acid is one of the products of volcanic action, and it is often produced in the vicinity of volcanoes, when these are not in action, from some subterranean source. It is produced in connection with many mineral springs, by combustion, respiration, and decay. We find it in nature chemically combined with other bodies and forming solid materials. Marble, limestone, chalk are all composed of carbonic acid and lime.

I called attention in the last lecture to the enormous consumption of oxygen which is going on. Now this consists mainly in its union with carbon to form carbonic acid. Carbon, as you know, is a very common substance which occurs in a pure state as diamond, less pure as graphite, still less pure as anthracite and yet purer as bituminous coal.

There are many simple processes by which we can generate carbonic acid. One of the simplest is this. I put in this jar some marble, a compound, as I just said, of carbonic acid and lime. If now I add an acid, as sulphuric or nitric acid, which has a stronger affinity for lime than has the carbonic acid, it will drive off the carbonic acid and unite with the lime. I add, in this case, hydrochloric acid. This boiling or effervescence which you see, is caused by the carbonic acid rising up through the liquid.

I suppose now that the jar is full of carbonic acid, although I cannot see it, for it is colorless and transparent. It is likewise poisonous. To see if it exists here, I insert a lighted taper which is extinguished, for carbonic acid does not support combustion. As carbonic acid is about once and a half again as heavy as air, if it exists here I can pour it into another vessel and then test this vessel with a lighted taper, or I can hold the taper under this vessel and pour the carbonic acid upon it. The flame, you see, is extinguished. Another and decisive test is to add lime water. The carbonic acid unites with the lime forming a white deposit of limestone.

Carbonic Acid in Bread-Making.

I can get carbonic acid by bringing carbonate of soda and tartaric acid together, or carbonate of soda and cream of tartar, or soda and phosphate of lime. These are substances sometimes used in bread-making to make the dough rise, for this action is caused in such case merely by the generation of carbonic acid gas in the pasty mass, and this gas expands the dough. The use of tartaric acid or cream of tartar, however, is bad because it leaves injurious salts in the bread. We should do better to use carbonate of soda and hydrochloric acid, could we be sure always of having these brought together in just the right amounts, for then we should have formed common salt and carbonic acid. But there is too much danger of having an excess of one or the other of these substances for common use. Carbonate of soda and phosphate of lime are better, for these form phosphate which exist in the blood and bones, and are desirable articles in food, all the more so since the common fine white flour is deficient in this necessary substance, being rejected in this necessary substance, being rejected with the bran.

When we use yeast for bread-making the case is somewhat different. Yeast is a ferment and this acts on the sugar (and on the starch which it converts into sugar) in the flour, causing the formation of carbonic acid and alcoholic compounds. This occasions a loss, for the alcohol is driven off in baking and about one-sixteenth of the flour is thus consumed.

Carbonic Acid in Nature—in Drinks.

Carbonic acid is generated by breathing, by combustion, by decay. In wells or shafts where organic substances decay, it is formed and makes the place dangerous

for people to enter. In the island of Java which is of volcanic nature, although there are now no volcanoes in action, there are basins which are filled with the gas which comes from the ground. As the Upas tree often grows in these basins, it has acquired the reputation of emanating deadly gases, which it does not do, although its sap is poisonous. In volcanic districts there are often caves where the gas, being heavy, flows along the ground, so that a small animal dies on entering the cave, while a man, whose head is above the stratum of gas, can enter with impunity.

Carbonic acid causes soda water to effervesce. But the gas, although poisonous to the lungs, is not poisonous to the stomach. It exists in beer, champagne and all effervescing drinks. The danger from soda water, however, comes from the fact that an excess of carbonic acid causes water to be a solvent of carbonates to a considerable degree, and hence if lead or copper are used in the manufacture of soda water, poisonous carbonates are formed and then dissolved in water. One of the best antidotes is simple syrup, sugar in solution, and this we are accustomed to use in our soda water, which fact undoubtedly explains the reason why more persons are not injured by this drink.

We have examples of this solvent action in nature. The rain gets charged with carbonic acid from the atmosphere, falls to the ground, meets and dissolves some of the limestone, runs to the sea where the limestone is taken up by marine animals and thus coral reefs are formed. Some remains in the water of springs. This solvent action explains the existence of caves in limestone rock. If we heat saturated lime water, we drive off the excess of carbonic acid and get a precipitate of carbonate of lime. Or if we let the saturated solution flow through a large body of fresh water, it gets diluted and limestone is precipitated. So often marble is formed. Carbonated streams flow into large bodies of water, the animals there get the lime which forms their shells.

Carbonic Acid Provides Food for Plants.

We can try another experiment. We pass carbonic acid into this solution of silicate of potash. We get carbonate of potash and a jelly-like mass of silica. This illustrates a natural operation. Carbonic acid will drive off silica from its combination with potash or soda. Now potash and soda occur in the soil and are necessary for certain plants. The carbonic acid takes it from the older rocks (which consist largely of the potash and soda silicates combined with other silicates,) being brought to them by the rain water. It takes out the silicates for the use of plants and leaves the clay, and thus are formed deposits of porcelain clay. When much soda is there, we can see how the alkaline deposits (of carbonate of soda) are thus formed on our interior plains.

Again, this jelly-like silica is slightly soluble in water, and thus it is carried to plants which need it to give firmness and hardness to their stalks. Almost every form of natural water holds a little silica.

One more point may be spoken of here. If we have two gases in contact, one heavy and one light, they will flow together and mix up intimately. It may be remarked that the lighter gas will rush into the heavier much more rapidly than will the heavier into the lighter, the velocity being inversely proportioned to the density. [The lecturer showed this by a very beautiful experiment in the case of hydrogen and air.] This fact and the agitating action of the wind explains why the heavy carbonic acid gas does not settle on the surface of the earth and render life impossible, but is as abundant in the upper as in the lower regions of the air.

NEVADA COAL.—The Humboldt Register has seen some specimens of good coal taken from a vein lately discovered near Argenta station, Lander county.

QUICKSILVER.—Another quicksilver mine has been opened which promises very favorably. It is owned by the Whitton brothers, and located near Sebastopol, in Napa county. A shaft was sunk 115 feet, a tunnel then run 550, a sink again made about 30 feet, when water was struck, with a bed of from four to six inches of cinnabar. The owners have a furnace in full blast, and have obtained about \$2,000 worth of quicksilver.—*Grass Valley Union*.

THE Leyden coal mine, near Golden City, Colorado, is on fire. It was opened and then allowed to remain unworked sometime, when it commenced to burn.

GOOD HEALTH.

SORE EYES.

[Written for the PRESS.]

Those who are not acquainted with the structure of the eye are apt to look upon it as a very small thing, having a single individuality, and therefore subject to a single form of disease. In other words, a sore eye is simply looked upon as subject to no more variations than is a rotten potato. Such persons suppose that all that is necessary to do in the treatment of a sore eye is to apply some kind of eye-water, and if that does not cure, nothing more can be done.

We meet people almost daily who have had sore eyes, varying in time from a few days to weeks or months or, perhaps, years, till their sight is either entirely destroyed or greatly impaired, without making any effort to save it, except simply to make some kind of local application that somebody has told them was "good for sore eyes."

Different Kinds of Diseases of the Eye.

A little review of some of the most common forms of diseases of the eye, it is believed, will be both instructive and profitable.

Conjunctivitis, commonly called inflammation of the eyes, is the simplest form of all the diseases of the eye, and is perhaps more frequently met with than any other; yet, simple as it is, there are more than a dozen distinct varieties, viz.:—Catarrhal, conjunctival, diphtheritic, Egyptian, eruptive, exanthematous, gonorrhoeal, granular, purulent, pustular, scrofulous, simple traumatic, etc. Some of these differ as widely in their nature and successful treatment as do measles and small-pox.

Eyewater may give some of them temporary relief, while with others it would be worse than useless. All are benefitted by medicines taken internally, and some of them can never be cured in any other way.

The conjunctiva has also a great many other forms of disease, except inflammation, to wit: pterygium or a thickening of its substance, cysts in, warts upon, and symblepharon or a "growing together" of the portion which lines the lids to that which covers the eyeball.

It will be understood that all of the above-named diseases belong to the covering membrane of the eye, while the eye itself may be perfectly sound.

The eye itself is subject to a great many forms of disease, all of which have a tendency to destroy the sight; but their detailed description here would be too long and tedious for an article of this kind.

It is perhaps sufficient to say, that the cornea, the iris, the lens, the sclerotic coat, the choroid, the retina, the hyaloid membrane, the vitreous humor and the optic nerve are all liable to a number of separate and distinct affections peculiar to themselves, each having a tendency to either impair or destroy the sight, and each requiring treatment peculiar to itself.

Taking into account the delicacy of the eye, it is a matter of surprise that it really does endure the amount of rough usage to which it is sometimes subjected.

Of all the senses, that of sight is certainly the most pleasing and the most useful. The most pitiable objects that we meet are persons that are blind. Such being the case, it is of the utmost importance to take good care of the eyes, and by all means to keep them in a healthy condition; but if they should become diseased, prudence would dictate that they should never be tampered with, but the very highest order of scientific skill should be employed, without delay, to restore them to a healthy state as soon as possible.

E. J. FRASER, M. D.
San Francisco, February 15, 1871.

ANONING WITH OIL.—When a child, or an adult, for that matter, takes a heavy cold which settles on the chest, or in the throat, or in the head in the region of the nose, one of the first things to be done is to anoint the parts affected with sweet oil. The oil should be heated, which can be easily done by pouring a little into an iron spoon, and holding the latter over the flame of a lamp for a minute, and then rubbed into the skin of the patient with the hand. Do this always at night, and at other times in the day when the case is a severe one. It is a certain relief, and will do not a little toward effecting a cure. Incipient influenza and croup may not unfrequently be warded off in this way.

AIDS TO DIGESTION.

Dr. Marcet writes, reports the *Lancet*, in a pamphlet just issued from the press "On a New Process for Preparing Meat for Weak Stomachs, as follows:—

"I have often thought that, if there were a means of preparing meat, so as to enable its easy digestion by weak stomachs a great boon might be conferred on a very large class of sufferers; and it has occurred to me that by submitting cooked meat to some process similar to that which it undergoes in the stomach, food thus prepared would require but very little effort of the stomach to complete its digestion, and thus the body could be efficiently nourished notwithstanding a debilitated condition of the digestive organs." Hydrochloric acid and pepsine being the principal natural agents for the digestion of meat in the stomach, he has thought that these substances might be applied to digest cooked meat in some degree, previously to its being eaten; and that by giving the stomach animal food thus softened and dissolved, sufferers from diseases of nutrition, causing wasting and emaciation, and who can take but little food, which they have much trouble in digesting, and others miserably tormented with dyspepsia, whose irritable stomachs cannot digest animal food, let it be ever so carefully cooked, might be enabled to take a little meat, and digest it well, the stomach being saved a certain amount of work. The food obtained by the process is a fluid "holding in suspension a light pulpy substance, most of which, when the liquid is allowed to remain undisturbed in a glass, is seen to fall to the bottom; it is in a great measure to this substance that its nutritious properties are due; but the pulpy mass is so minutely divided and so soft, as to be swallowed unperceived." It is a very palatable food, and is said to be acceptable to invalids.

PROPAGATING CONTAGIOUS DISEASES.—Professor E. Lankester says in *Nature* that scarlet fever is the most destructive of all contagious diseases, and that it is often spread by the particles of the skin which peel off from the body as the patient is recovering. He mentions a case where scarlet fever attacked a large number of those who received milk from a particular dairy. It was discovered that those who had recovered from the disease had been milking the cows before the sloughing of the cuticle had been completed. Mr. Lankester insists that a free use of disinfectants will destroy the poison germs. All secretions of the mouth or nose, as well as of the other excretory organs, should be immediately brought in contact with a good disinfectant; and all clothing should either be washed in a disinfectant solution or exposed to heat in an oven.

INGROWING TOE NAILS.—The trouble and pain from this cause can be immediately and permanently relieved, without pain, by filing down thin all the exposed part of the nail, till it is soft and pliable. This will immediately relieve the part pressing into the flesh, which need not be cut or extracted. The filing is not in the least painful as the file will not take hold of the skin or flesh. In the course of several months, the nail will grow out thick again, when the filing should be repeated. The edges of the nail will never grow into the flesh so long as the top of the nail is soft and pliable; and there is nothing so simple, convenient, safe, and painless for keeping it so as a file.

CURE FOR STYES.—Put a teaspoonful of soda in a small bag, pour on it just enough boiling water to moisten it, then put it on the eye pretty warm. Keep it on all night and in the morning the sty will most likely be gone; if not, a second application is sure to remove it. We have heard also that the white of an egg, when applied to the eyelid with a leather just before retiring, soon effects a cure. Styes arise from impurity of the blood, and no permanent cure can be effected by a mere external application. The blood should be kept in a healthy condition by the frequent use of some mild purgative—say a dose of rhubarb and magnesia.

A YOUNG man named Regan died in Albany recently from a mole or wart on his face cut by a razor while being shaved. The wart was on the left cheek, and, while the whole right side was paralyzed, the left leg and arm became rigid, and the face turned over the left shoulder.

AFTER all, there are only two sorts of disease, says a French doctor—one of which you die, and the other you don't.

Good Health remarks that what people call "bile" is generally lobsters, clams, or some indigestible food.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay St., below Sansome.

San Francisco:

Saturday Morning, March 4, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 1, 1871. Legal Tenders buying @90%; selling @91. Gold in New York to-day 110%.

Table of Contents.

Harvesting Machines, Ill.; Iron Ore in Wyoming.....	129
MECHANICAL PROGRESS.—Barron Steel Process; Four-Cylinder Locomotive without Oscillation; English vs. American Woollens; Naylor's Brake; Sherman Iron Process; Effect of Cold on Iron and Steel.....	130
SCIENTIFIC PROGRESS.—Genesis of Species; Ball Lightning; Continuity of the Chalk; Bastain vs. Frankland; Acoustic Studies of Flame.....	130
Notes on Tuolumne County; Banner District, Cal.; Smelting Furnaces in Inyo County, Ill.; Colorado Oil Wells.....	131
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.....	132, 133
List of Patents; Notices of Recent Patents; Poultry Notes, Ill.; Agriculture in Montana.....	134
Chemistry and Its Applications; Good Health.....	135
Journalistic Jocularities; Mining Swindles.....	136
Familiar Scene in Pompeii; Horticultural Society; Ramie.....	137
HOUSEHOLD READING.—Mixed Dishes; Wood in the Kitchen; New Bread; Domestic Receipts; Mechanical Hints; Life Thoughts, etc.....	138
Diamonds in Trinity County, Cal.; A Rocky Mountain Canal; Mad-stones.....	140

MAD-STONES.—The faith in the virtue of mad-stones, or poison stones, says the *N. Y. Times*, for neutralizing the effect of snake bites, dates back for centuries, coming to us from the East. The monks of Manila carry on quite a lucrative trade in their manufacture, supplying the merchants of India. The snake charmers of the Malabar and Coromandel coasts likewise prepare them, but only for themselves, preserving their composition as a secret. In Mexico, similar stones have been mentioned by travelers. An experience during a four years' residence in India gives the writer but little faith in the efficacy of the stones. The method of applying the snake-stones is as follows:—A bandage is tightly placed above the wound; the stones are then applied; they attach themselves closely, imbibing, by their porous texture, the blood that oozes from the bite. The stones will adhere from two to ten minutes, the length of time depending on the amount of blood that issues from the wound and their capacity for absorption. A bandage is not always applied; compression with the hand, or rubbing the affected part downward is said to answer. Before again using the stones, they have to be washed and well dried, perhaps subjected to great heat.

THE Colorado weekly *Register* comes to us enlarged in size and by no means deteriorated by its sudden growth.

GEORGETOWN, Colorado, is going after a railroad. We hope that the people there may get one. It will be of the greatest value to the mines.

A GUAVA TREE.—William Patterson, a nurseryman of Sacramento, says the *Record*, has a guava tree growing in open air, which is loaded with fruit. It has been bearing for the past four years.

NEW GRIST MILL.—W. B. Clarke is about to erect a grist mill at Railroad Flat, Calaveras county, at which point he owns a fine water power.

ILLINOIS has more miles of railroads than any other State, but the cost of her roads and equipment was less than of those in Pennsylvania.

ANNEXATION.—Efforts are being made to bring about the re-annexation of Walla Walla county, now in Washington territory, to the State of Oregon.

MISSOURI has given up hopes of finding tin ore in paying quantities.

Mining Swindles.

Every now and then, we receive letters asking information concerning mining properties from individuals who have been induced to invest in stocks. In too many cases we are obliged to answer that the enterprises are but swindles. The fact that there are so many hogus mining operations harms legitimate mining enterprises in a very high degree, and redounds to anything but the credit of our miners. We can only warn people that, in investing in mining stocks, they must use as much discretion as in any business operation; and give force to the warning by exposing swindles as far as is in our power.

One of the last cases was with regard to the Garner gold mine, of Tuolumne county. A lady of Manchester, N. H., wrote us for information concerning the mine, and we put a query in the Press. The *Southern Democrat*, of Feb. 25th, answers us fully, thereby doing an act which deserves high praise. Some persons, strangely enough, imagine that, for the sake of the reputation of the section in which they reside, all *exposés* of swindling operations, there carried on, should be suppressed, and often it is difficult to get at the facts of such a case. This is a most mistaken notion. The *Democrat* will please receive our thanks for its reply, which reads as follows:

Garner Gold Mine.

THE SCIENTIFIC PRESS of last week has a paragraph in relation to this mine, asking if it is a swindle, setting forth that "Mrs. S. T., 222 Chestnut Street, Manchester, N. H., having spent considerable money on stock of the Garner Gold Mine, on the main Tuolumne river Tuolumne county, California, desires to know whether the affair is a swindle." So far as Mrs. S. T. is concerned, it amounts to a swindle, her stock is utterly valueless. The original locations and owners of this mine, in 1869 and in 1867, prospected the vein to a limited extent, finding good prospects. In 1867, a company was formed and incorporated in Massachusetts, that entered into a contract with the original owners, to build a ten-stamp mill and develop the mine for a one-half part of it. The original owners to retain one half not subject to assessments. The incorporated company, for the one-half, issued stock which was bought and sold in Massachusetts. A superintendent and a managing agent was sent here to develop the mine and make necessary improvements. For a time everything went on swimmingly, there appeared to be no lack of money to do anything the managers wanted to do. A very good ten-stamp mill was completed while some work was done on the vein. About the time the mill was finished, the workmen not being paid as promised, liens were filed against the property. The manager and superintendent brought suit against the company for services. The liens were foreclosed, the agents obtained judgments, and the property was sold at Sheriff's sale, leaving the stockholders, with the original owners out in the cold. The mine has not been developed, the company lost its grip before reducing ore. The whole thing appears to have been gotten up that a few should have a "good thing" at the expense of trusting stockholders in the East. Near as we can learn, twenty thousand dollars or more were sent here by the stockholders, of which amount, one-half was needlessly squandered in extravagance for fine horses, hotel living, and passages to and from the East and travelling expenses. No one can tell the value of the mine; it is not opened sufficient for any judgment to be formed. This is but one of the many projects of the same piece of cloth in this country. The parties who took stock, paid large amounts for expenses having a very remote connection with the improvement of a mine. The original owners have lost their property and Mrs. S. T. may as well make up her mind under such circumstances, that her stock is worth only the value of the paper it is written on. We regret such is the fact. This way of conducting mining operations results in great injury to the reputation of our mineral resources, but so long as schemers and speculators can induce unsuspecting people to furnish money for them to squander in developing mines at liberty, so long we must suffer from operations similar to that of the Garner Gold Mine.

Journalistic Jocularities.

Those who are personally acquainted with the editor of the *Grass Valley Union*, know how fond he is of his joke, and how he will indulge in flights of humor on the least provocation. He is apt, however, at times, to veil his wit in such language that persons who are not very well acquainted with him are sometimes at a loss to know whether he is really joking or whether he is in earnest.

It is decidedly unpleasant to be obliged to explain a joke, a thing which is at times necessary to prevent misunderstanding. We feel that it is our duty in the present case to perform this task, because we have the reputation of interior journals at heart, and would not have it thought that the editor of a paper published in a mining region like Grass Valley, was entirely ignorant of matters pertaining to mining.

The jocularity to which we now refer, was occasioned by an article in the Press, entitled "A Co-operative Gold Mine," reprinted from the *London Gentleman's Magazine*. The editor of the *Union* pounced on the article and subjected it to a series of witty remarks. Of course, he meant it merely for a joke. The chief point made was that it was comically absurd to think that 26½ men could be at work at once in a small shaft. To be sure, this fact was nowhere mentioned in the article, only the statement was made that the company consisted of 80 men, who were divided into three shifts and worked night and day for three years. But our friend saw the opportunity for fun and went for it, adding that "the great time (169 weeks) consumed (in sinking the shaft between 300 and 400 feet) was probably because the men were packed so tightly in the shaft that they could not work." The joke is good, although not so bold as the statement which follows, that "these men worked on their own shaft and not off at other places part of the time as co-operative miners in those parts are wont to do," a statement which was entirely original with the joker, and consequently not given as a fact to be believed.

Now a serious-minded individual might think that the editor of the *Union* believed that all that is necessary in sinking a shaft is to dig in the bottom of the pit; that he was ignorant of the fact that the dirt must be raised to the surface, and that men must be employed for this purpose; that there is generally water to be pumped out, that timber must be cut and prepared for supporting the sides, that there are a thousand and one different things to be done in connection with sinking, so that only a part of a shift is ever in the pit, especially when a great work is being prosecuted; that it is a very common thing for a portion of the co-operators to work elsewhere in order to supply the means for carrying on the work, etc.

Now the editor of the *Union* knows all this to our certain knowledge. We should not be surprised if he likewise knew that in the early days of mining in Australia, a certain number of shareholders in such an enterprise were obliged to go themselves into the "bush" to cut the necessary timber and then to haul it to the mine. Mr. Shoemaker isn't so entirely ignorant of mining matters as not to be aware of these things, although his article might lead some unsuspecting persons to imply it. And as he seems to have a praiseworthy interest in the reputation of the senior editor of the Press, we cannot but reciprocate, and therefore give this explanation in his favor.

Nor is that gentleman so provincial as to imagine that, because a number of co-operative mining operations are carried on around Grass Valley, co-operation is fully appreciated every where in the mining regions, and that co-operation is as extensively practiced everywhere as it ought to be. He has undoubtedly read letters in

the Press and other papers asserting that the thing is impossible. Again, we imagine that he would not think it useless to advise and stimulate men to continued honesty and industry, for example, even in an honest and industrious community.

The editor of the *Union* does have an awful tendency for jokes. In the very next issue of that paper following the one in which the article alluded to occurs, he gets off a whole column of serio-comic matter on "magnetic motive power." He clips a tragic article on a wonderful electric machine which creates an immense amount of power, said machine being the invention of a gentleman (unless we are greatly mistaken) who flourished some twenty years ago in Massachusetts for a glorious but brief season, during which he showed that water could be decomposed wholly into hydrogen or wholly into oxygen at will, that turpentine could be burned an infinite length of time without being consumed, and a variety of such wonders. The *Union*, in using the electric machine articles adds characteristic remarks:—that "late experiments prove that electricity, or the galvanic current, can be made to run machinery up to any wanted horsepower * * * that the power of the electric machines can be indefinitely increased. * * * The results will be wonderful and will revolutionize machinery. The stamps and all the amalgamating machinery of the Eureka mine can then be run day and night and from year to year by a battery in the superintendents' office, which will not occupy a space larger than a writing desk." We presume that it is the battery, and not the superintendents' office, which is to occupy the small space mentioned, and only wonder that it was not added that the battery would be gradually decreased in size until no larger than a mustard seed, and finally he done away with entirely.

But these are only Brother Shoemaker's jokes. That gentleman, however, has no right to imagine that every one understands him as well as we do. Consequently, he ought either to make his jokes clearer or else to add, as A. Ward was wont to do, "this is a goak."

A VERY USEFUL DEVICE.—We have been shown a working model of a very ingenious and useful apparatus, invented by Mr. Louis M. Clement, one of the engineers of the Central Pacific. This is a self-registering speed indicator, and consists, in brief, of a revolving cylinder, driven by clock-work, and so arranged and constructed in combination with a marker, actuated from the action of the car-wheels, that dots are made on a sheet of paper, placed around the cylinder, at regular distances passed over by the train, while at the same time the lapse of time is given by lines drawn on this paper. In this way is obtained a complete record of the speed of the train, and the number and length of stoppages; so that the managers of the road cars always know whether the engineer has performed his duty in regard to running on time, etc. If, for instance, the engine-driver makes too long a stay at one point and then tries to make up for lost time by running at an extra speed (a fruitful source of collisions and other accidents), this is unerringly shown by the simple device. We saw a record of a trip from Oakland to Ogden kept in this way. In this case, in starting out from Verdi, a freight train was met, and the train to which the apparatus was attached was compelled to back four-fifths of a mile and then to lie over for some time, but arrived at its destination on time. The office at Sacramento was not notified of the fact, as should have been done, but the record showed the delay and stoppage, which led to the discovery of the real state of affairs. We believe that such a device would be most useful for railroad trains, and will prove a great safeguard against accidents. A patent has been applied for through the SCIENTIFIC PRESS Patent Agency.

A Family Scene in Pompeii.

Pompeii was a small city. It contained only about thirty thousand inhabitants. It was beautifully situated, however, in a picturesque valley, and attracted many persons of distinction. It had a considerable trade but, on the whole, enjoyed no special prominence in ancient history.

Sixty-three years before Christ, a violent earthquake shook the city, ruined many of the buildings and drove almost everybody from the place. The people returned after awhile and went vigorously to work to rebuild the city. Very much had been done, temples had been finished, private residences completed, business and pleasure had resumed full activity. A crowd was assembled in the amphitheater on November 22d, 79, to witness a gladiatorial display, when there occurred a terrible eruption of Vesuvius. A deluge of dust is thrown over the city. The people rush hither and thither, some out of the city, some to seek shelter in the shops, under the theaters and in underground retreats. But there comes a deluge of fiery stones and ashes which fills the streets, breaks down the roofs, enflames the houses, and when the eruption had ceased, the city was buried.

Some attempts were made to recover valuables by excavating, and the Emperor Titus sent senators to see whether the city could be restored, but nothing of importance was accomplished and gradually vineyards, orchards, gardens and forests covered the ground and Pompeii was forgotten for centuries. In 1748, some vine-dressers, in digging, unearthed statues, and excavations were made, but it was eight years longer before any one suspected that it was Pompeii that was being exhumed. The work was carried on slowly and with interruptions, until, in 1860, it was resumed with activity, and since then very much has been accomplished. Pompeii is again being brought out to the sight of man, and about one-third is now unearthed. In these excavations, not only are the buildings exposed and the various household utensils, etc., etc., discovered and saved, but even the bodies of the inhabitants or rather the forms of their bodies. The smaller articles, which might be stolen, are placed in a museum at Naples.

A number of years ago, a Belgian artist, Coomans, visited the place and was so struck with its beauties that he devoted himself to delineations of antique life. A copy of one of his most charming works is here given. He has examined the city and the Museum at Naples, and has thus been enabled to re-construct a scene as well as if from actual life. One or two points illustrated by this picture, may be spoken of here.

The dress of the women, as can be seen, was of a rather light description. The complete costume consisted of three parts, a simple shift, worn next the skin, a tunic, sometimes with short sleeves, which, however, generally covered only the upper part of the arm and were not sewn together but fastened over the shoulders by means of clasps, and a long flowing outside garment for wear out of doors. The tunic was confined around the waist by a band, which was concealed from view by the folds of the upper part of the garment.

That of the lower classes reached only to the knee, showing the ornaments on the legs; but the higher classes wore tunics reaching to the feet. Sandals were worn in the house, and booties in the streets, both being often of bright colors and highly ornamented.

Fine long hair was highly prized. There were various methods of dressing it. The simplest way was in smooth braids with a knot behind, but sometimes a storied edifice was used. To keep the hair in place, bands and pins were used. Often at night, or when busied with household affairs, nets, frequently of gold thread, were employed. Ornaments were worn in the hair, on the arms and neck and even on the legs. The Pompeian ladies seem to have been

for further description. Our engraving is not taken directly from the original painting, but from one of Prang's fine chromolithographs. This and other chromos can be obtained of Messrs. Snow and Roos, 21 Kearny street, San Francisco.

Horticultural Society.

A regular meeting of the Bay District Horticultural Society was held last Saturday evening, when nine new members were elected. Following are the leading questions for discussion in the Society at the present:

First—Which are the most suitable forest trees for California?

Second—Which are the best evergreen shade trees?

Third—Remedy for the mealy bug?

Ramie.

Quite a number of persons in different parts of the State, are experimenting with the cultivation of the Ramie, on account of the prospects it holds out for large profit. The ultimate success of the business, however, does not depend so much upon the facility of its cultivation, as upon the economy of the preparation of the fibre for market. Much has been said about certain machines which have been invented in the East, by which its preparation is said to be easy and cheap; but nothing of the kind has yet been seen on this coast. Under these circumstances several parties interested in the cultivation of the plant, in Alameda county, are said to have combined and sent a gentleman—Mr. Gilbert Lyman—to New Orleans, to personally examine the machines and look carefully into the method and success of their operations, and report to his correspondents here. Mr. L. has sent back the following report:—

I found Lefranc's machine at work on the stalks of Ramie raised in Louisiana. It turns 600 pounds of clean new fibre per day—doing its work with ease and perfection; I send you samples. This is an improvement on the first machine by this maker, and they cost more. The price is \$500, if boxed for shipment. It goes by hand or steam power. It has made a revival of interest among the planters, and there will be a large increase of production.

Mr. Lyman advises the Alameda farmers to cultivate ramie as extensively as they can, expressing the opinion that when they have the machine, they can make money faster than by any other crop. The plant may be cleaned in the field, where it grows, and it is calculated that from and after the second year of its growth, it will yield two tons to the acre, valued at from \$75 to \$100 per ton. The inducement held out is certainly a large one; but we should not advise any one to go very extensively into the speculation, until a machine is put up in this State, and its practicability fully demonstrated here. We have suggested several times that those persons extensively engaged in cultivating the plant for sale, for propagation, should unite in purchasing a machine for this State by which an ocular demonstration may be given here. When that is done we shall take much pleasure in making the fact known. If such an experiment should prove successful we see no reason why

the cultivation and preparation of ramie should not become an important industry in this State. There is no question about the demand for the staple, both at home and abroad.

BEWARE OF ORCHELLA.—J. A. Bauer having been requested to send a lot of orchella from Lower California, to Germany, made an assay or examination of it and found that it was worthless. He had no information whether it is different from that already shipped from Magdalena Bay. Speculators in it should be careful to gather only that which promises good coloring matter.

GROWING GRAIN IN DANGER.—Mr. John Powell, who has a farm about one mile east of Petaluma, says the fields of young grain in his vicinity are being greatly damaged by a small insect, which is eating up the growing blades. He has hopes, however, that the rain may destroy this insect.



A FAMILY SCENE IN ANCIENT POMPEII.—BY P. O. J. COOMANS.

very fond of ornamentation of their persons. Evidently the dress of the children was very simple.

The houses were sometimes finely decorated with pannellings. Carpets were not used, but we see here a tessellated pavement. The household utensils were varied in form, often of the most complex and beautiful manufacture. The engraving shows a handsome candelabra on the table and one on the floor near the fountain. Oil-lamps were in universal use, and notwithstanding their elegant forms, they were imperfect as regards combustion, for the ceilings were blackened with smoke. The dwelling rooms opened out into a central court, and, at least, in the lower stories, the buildings did not have many openings into the streets.

By examining the engraving other points in the domestic economy of the ancients will be discovered, but we have no space

Fourth—The destruction of insects injuring our vegetables and other produce?

Fifth—Which are the best varieties of roses for California?

Sixth—Which are the best house-plants?

The Society is desirous of obtaining all possible information on these subjects and solicits communications from parties interested in various localities of the State. Communications may be addressed to F. A. Miller, Secretary of the Society. Post office box, No. 418 Kearny street. Whenever the Society has come to any conclusions on these subjects they will be laid before the public.

WINE CULTURE IN FRANCE AND PRUSSIA.—In 1869, about 47,872 acres of land in Prussia were planted with grape vines; in France, 6,018,000 acres were thus covered. The value of the Prussian crop was about \$1,968,750; of the French, about \$426,000,000.

FORT WALLA WALLA is to be sold, says the Walla Walla Union, probably for the benefit of the Northern Pacific Railroad.

HOUSEHOLD READING.

Mixed Dishes.

Simple food is always the easiest to digest; but when people will mix up different meat dishes and highly seasoned, they should always be freely mingled with such things as celery, cauliflower, spinach, lettuce, and such easily digestible vegetables; for these, taken with concentrated food, give lightness and porosity to what is eaten, so that it can be more readily attacked and assimilated by the digestive fluids. Each dish of meat should be served with some pleasant acid. Oysters and fish should be flavored with sections of lemons; mutton may be garnished with a little currant jelly; roast beef or turkey or chicken should come to the table with celery salad, and so on through all the mulifarious rounds of meats.

A celebrated French cook, once declared he could give a dinner with which not even the most fastidious epicure could find fault, and yet one from which no symptom of indigestion would arise, though hours were spent at the table, and rest in sleep sought immediately after. His combination of dishes was much like that above described.

Though a call for such a dinner as we have suggested might throw the ordinary cook into utter despair, still there are many valuable hints and suggestions which may be gleaned therefrom by the prudent and thoughtful housewife. Apples, a little acid and well baked, are cheap, easily prepared, and form a most palatable and healthful accompaniment for meat; so does cranberry sauce. Cold slaw made from well chopped cabbage is a very good substitute for celery and so is lettuce, in its season.

As we said, at the outset, simple food and plain dishes are the most healthful and nutritious. A single variety of meat, with not more than two kinds of vegetables is always better than more; a nice baked apple (a recipe for preparing which is elsewhere given,) or a slice of nice light, white, or graham bread, with good sweet butter, forms a better desert than pie or pudding—if we can only be brought to think so.

How OILS EXPLODE.—The expression often used that oil is explosive conveys a wrong idea. The oil does not explode. An oil may even extinguish a burning match when thrust into it, and yet be highly dangerous as a burning fluid. It is the vapor of the oils, mixed with the air, that is dangerous, as far as explosion is concerned. Where a partly filled lamp has the portion above the oil filled with a mixture of vapor and air, it may explode. When a lamp is filled, while lighted, the mixture of air and vapor in the can or filler explodes upon coming in contact with the flame; the oil itself does not really explode, though it does serious injury when scattered by the explosion.

The poor invalids who visited Congress Hall, at Saratoga, last summer, consumed thirty-nine thousand chickens, thirty thousand dozen eggs, fifty-nine thousand pounds of beef, forty thousand pounds of lamb and mutton, nine thousand pounds of veal, fifteen hundred turkeys, and of other fowls five thousand.

After reading the above, one can but hope that they now "rest from their labors!" And we question whether or no some of the healthy invalids who flirted, painted, powdered, and dressed to amuse and astonish their invalid friends, will not, the coming season, be fit subjects for a share of the invalid diet? In plain words, does not the eating of such food, make and keep our people invalids.—*Jewell.*

How to BROIL WITHOUT BURNING.—In broiling a beef steak, whenever the coals blaze up from the drippings, a pinch of fine salt thrown upon them will instantly extinguish the flames. By carefully attending to this matter, you may have your broiled steak or chicken, crisp but not scorched, and juicy, yet well done.

Wood for the Kitchen.

Never use green wood in the kitchen. There is a saving of from one-quarter to one-third of quantity in using dry wood, according as the wood is more or less thoroughly dried, to say nothing of the saving of time and temper. If thoroughly dried the latter is the correct figure. There is no simmering with dry wood; but a brisk, cheerful fire, which never goes out till you have done with it. Then again you can always have a bed of bright, live coals, for broiling, or any other purpose, instead of the dead, smoking embers which result from burning green wood.

With dry wood your meals may always be served promptly; while cheerful faces and bright eyes enliven the kitchen. With green wood you can never depend upon your fire; the room is always full of smoke and unsavory odors which find their way into your hutter, your cream and your milk, and the whole house is more or less affected; while everybody is cross and ill-natured with smarting, and blood shotten eyes.

In the one case, all are bright, pure and happy; in the other everyone is glum, morose and miserable.

This is no exaggeration. A smoky room and a cold room is the abomination of everybody. The reader's experience and observation will fully bear us out in what we have said.

The remedy is easy—simply cut or get your wood ahead, and keep it under cover in wet weather. The farmer who cuts his wood from the forest or riverside, should always keep at least a year's supply ahead; haul it home and cut it up at your leisure; but don't pile it close until it has become thoroughly dried and aired. Wood should never be kept in a close place, even if dry, for it will gather dampness, unless well ventilated, and in such condition will burn "dead," and without the brightness of flame so pleasant and desirable. Young wood is much better for fuel than old, large forest timber, even though the latter be vigorous and growing well when cut.

NEW BREAD.

New bread is not unwholesome if properly made. It was prescribed in former times, when bread was honestly made. In England there is so much inferior flour that great adulteration is induced to give whiteness to the loaf. In Paris and Vienna bread is always eaten fresh and no evil results. French bread is mostly crust. The secret of its excellence is in using the least amount of yeast and the greatest manipulation. Machinery is largely employed to insure thorough mixing, so that "a little leaven leaveneth the whole lump." The best mortar is made by sparing the lime, fining it to dust, and mixing it so effectually that every particle of sand gets a touch of lime, there being no excess in places and deficiency in others. So it is with breadmaking. The more you knead the dough the more you ripen the mass and the smaller is the quantity of yeast required. It is affirmed by the journal of *Good Health* that when bread is thus ripened in the dough it may be eaten fresh without any fears of indigestion. That journal is not partial to stale bread. The stomach does not crave it, and nature pronounces against it. Every cook knows the difference between shortcake well kneaded and that which is made hastily. The one is crisp, tender and digestible; the other is tough and dyspeptic. In California there is no excuse for adulterating flour and using alum to whiten inferior grades.

NUTRITIVE VALUE OF BRAN.—A writer in the *Country Gentleman* gives the following valuable information on this subject.—Rye and wheat bran contain nearly one and a half as much albuminous substance as flour, twice the quantity of fat of the whole grain, three times that of phosphoric acid and potassa, and four times that of magnesia. The breeder and stock-raiser thus possesses in the bran a fodder that surpasses rape and linseed oil cakes in nutritive value. How highly these are estimated is well known. By mixing bran with straw and hay, which are deficient in phosphates, a most nutritious fodder for young and milking cattle may be made.

Domestic Receipts.

TO BAKE APPLES.—Take out the cores and fill or partially fill the cavities with crushed sugar; place the apples, so prepared in a deep dish or tin, and pour hot (not cold) water in the tin; bake in a quick oven, and you will have baked apples that are delicious.

MASHED POTATOES.—If potatoes served to the table mashed, are first *baked* instead of boiled, as is the usual custom, they will be found far more white and mealy, and of a delicate delicious flavor. The improvement in the dish is well worth the extra labor.

APPLE FLITTERS.—Beat three eggs, the yolks and whites separately, add the yolks to the milk, and stir in the whites with as much flour as will make a batter. Have ready some tender apples, peel them, cut them in slices around the apple, take the core carefully out of the centre of each slice and to every spoonful of batter lay in a slice of the apple, which must be cut very thin. Fry them, in hot lard, to a light brown on both sides.

CUSTARD CAKE.—Two cups white or light brown sugar, three of sifted flour, half a cup of butter, three eggs well beaten; boil all in which is dissolved one small teaspoonful of saleratus, and two teaspoonful of cream tartar mixed with flour. Bake in four jelly tins.

Custard for the Cake.—Boil half a pint of milk with four table-spoonful of corn starch with some cold milk, enough to wet it smooth, and three eggs well beaten; boil all five minutes. Have one pound of shagbarks blanchd with boiling water, and stir them in after the custard is strained and cool. Almonds can be substituted for the walnuts. When the cakes are cold, add the custard between them. One can make two cakes of two layers, or one with four. If two of the whites of the eggs are left out of the cake, and frosting made of them, its appearance is much improved.

RICE DUMPLINGS.—Put your rice in a stew-pan, and pour on each cup of rice one gill of milk; stand it near the fire where it will keep hot, but not boil. As soon as it has absorbed all the milk, pare your apples, take out the cores, and put your rice around them instead of paste. Boil them until the apple is soft. They should be tied in dumpling cloths.

A GOOD IMITATION OF COCONUT PIE.—Grate raw, sweet potatoes into custard, making about an equal quantity of each, and bake quick in a hot oven.

WINE SAUCE.—One and a half cups sugar, half cup of butter beaten well together, then add a glass of wine, two table-spoonful of flour, wet with cold water, to prevent lumping; then add a tea-cup of boiling water and let it stand a few minutes on the stove, then pour it in the butter and sugar and heat it up; grate some nutmeg in it and serve hot.

Mechanical Hints.

A VALUABLE COMPOSITION.—Dr. Scherzer, an Austrian official at Pekin, has sent to his Government some specimens of a Chinese composition called "Schioicac" which has the property of making wood and other substances perfectly water-tight. He says that he has seen in Pekin wooden chests which had been to St. Petersburg and had come back uninjured, and that the Chinese use the composition also for covering straw baskets, which are afterward employed for carrying oil long distances. Card-board when covered with the composition, becomes as hard as wood, and most wooden buildings in Pekin have a coating of it. It consists of three parts of blood, deprived of its fibrine, flour of lime, and a little alum. If the composition alluded to actually possesses the properties ascribed to it, it is certainly very valuable.

CLOSING CRACKS IN STOVES.—It may be convenient to know a ready method of closing up cracks, which are not uncommon, in cast-iron stoves, and we are assured that the following recipe is a reliable one. Good wood ashes are to be sifted through a fine sieve to which is added the same amount of clay finely pulverized, together with a little salt. The mixture is to be moistened with water enough to make a paste, and the crack of the stove filled with it. This cement does not peel off or break away, and assumes an extreme degree of hardness after being heated. The stove must be cool when the application is made. The same substance may be used when setting in plates of stove, or in fitting stove-pipes, serving to render all the joints perfectly tight.

Life Thoughts.

The best consolers of human hearts bear broken hearts in their own bosoms.

It is better to endow one man, who will work as the Father works, than a hundred charities.

The essence of a kiss, as of a contract, is consent; without that it is not a kiss—it is an insult.

PRINCIPLES believed will add fiber to the soul; but sentimental cant clogs the soul with dead matter.

The Sabbath does not stand on argument alone, but on the everlasting want of the human soul, of a seventh day's rest.

If the proud man could only see the vacancy his death would make, he would not be so vain of the place he occupies in life.

If you study history, you will find all great actions, whether had or good, in the periods of transition from one state to another.

The violet grows low and covers itself with its own leaves; and yet of all flowers yields the most delicious and fragrant smell. Such is humility.

If prayer does not cause us to leave off, sinning will soon make us leave off praying.

"CULTIVATE not only the cornfields of the mind, but the pleasure grounds also," was a motto of Dr. Whateleys.

HAPPINESS grows at our own firesides, and is not to be picked up in the stranger's gardens.

MOONLIGHT is like a ladder over which thoughts and prayers may glide to heaven. When there is love in the heart, there are rainbows in the eyes, which cover every black cloud with gorgeous hues.

Any feeling that takes a man away from his home, is a traitor to the household.

The more important an animal is to be, the lower is its start. Man, the noblest of all is horn lowest. The next thing above a man is an angel.

FLOWERS are the sweetest thing God ever made, and neglected to put a soul into.

BE A MAN.

Foolish spending will ever be found to be the father of poverty. Do not be ashamed to work, and of hard work. Work for the best salary or wages you can get, but work for half price rather than be idle. Be your own master, and not let society or fashion swallow up your individuality—hat, coat and boots. Do not eat up, or wear out, all that you earn. Compel your selfish body to spare something for profits saved. Be stingy to your own appetite, but kind to other necessities. Help others, and ask no help for yourself. See that you are proud. Let your pride be of the right kind. Be too proud to be lazy; too proud to give up without conquering every difficulty; too proud to wear a coat that you cannot afford to buy, too proud to be in company that you cannot keep up with in expenses; too proud to lie, or steal, or cheat; too proud to be stingy.

PLEASURE.—What we need now in life, above every thing else, is Christian men who take the lead in manly pleasures and make them honorable and noble. Pleasure is of God. So is suffering. Joy and sorrow are both of them born of God. There is a manly way of enjoying one's self which is not only permissible, but most wholesome, and, in moral things, most beneficial. Let men be free to take all rational amusement, free to take joy, and that abundantly; and yet the moment pleasure and its permissions become soiled or even sullied, let men turn away from them, and loathe them, so that the world, looking on them, shall see that they are "men of pleasure," not in the sense that they are men of eminent conscience.—[*Beecher.*]

DUTY is a stimulant that never fails. Be the disappointments of life what they may, duty puts a blue sky over every man. Men have tried all means to drown the heart's bitterest disappointment—the wine-cup, the suicide, the forgery, the abandonment of all worldly and religious restraint, but none has had such a soothing and stimulating power as the sense of duty.

It is not work that kills men, it is worry. Work is healthy; you can hardly put more upon him than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery, but the friction. Fear secretes acids; but love and trust are sweet juices.

FIND fault only when you must, and then in private if possible. The blamed are less inclined to resist when they are chided without witnesses; and the accused may be impressed with the forbearance of the accuser.

Business Cards.

A NEW PATENT.

If you want a superior set of **TEETH** on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorff streets,
SAN FRANCISCO.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire work,
such as Boilers, Furnaces, Ovens, Grates, Ranges, &c.
Orders left with C. W. WHITE, 47 Clay Street. **JOS.**
THORNHILL, 1612 Mason St., near Green, will be
promptly attended to. 2v12-3m

JOHN ROACH, Optician.
Has removed from 321 Montgomery street to
510 Washington street.
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate
R. DUTTON, President.
Geo. M. GUNDEE Cashier. 1v16-3m

THE EYE! THE EAR!
DR. D. E. DUDLEY,
Surgeon, Oculist and Aurist,
Has removed to his new rooms, 21 Post street between
Montgomery and Kearney. 3v22-3m

WM. BARTLING. **HENRY KIMBALL.**
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO. 1v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Mantle Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS.
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
SAN FRANCISCO. 6v14-1

For **Steam Pipes**
& **Boilers**
Saves 25 per cent. For Sale by **BERRY & PLACE,**
112 California street, San Francisco. 4v22

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.
Capital, One Million Dollars.

A. N. COLEMAN, President.
R. N. VAN BRUNT, Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
2v20-27

Eastern Advertisements.

EVERETT HOUSE,

Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amuse-
ment.

The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,

are within one block. The house is NEATLY AND ELEG-
ANTLY FURNISHED THROUGHOUT, and travelers from Cal-
ifornia, Oregon and the Territories, will find the

Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best
possible treatment.

TERMS—\$2.50 per day.
BYRON A. BALDWIN & CO., Proprietors.
2v22-4, clmims

BABCOCK
FIRE
EXTINGUISHER.

Over 300 Actual Fires put out with it. More than
\$1,000,000.00 worth of property saved from the flames.
The Government has adopted it. All the leading Rail-
roads use it. Insurance Companies reduce rates where
it is introduced. Invaluable for private Residences,
School Houses, Hotels, Warehouses, and all buildings
where life and property are in danger from fire. Send
for "Its Record." **F. W. FARWELL**, Sec'y,
122 Washington st., Chicago. 3v22-3ms

LEONARD'S
Patent Vapor Jet Burner and
Hand Lamps.
Also, Portable Gas Burners and
FIXTURES.
County and State Rights for sale.
Send for Circulars.
Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.
3v22-5ms

COUNCIL BLUFFS
ENGINE
MINING MACHINERY
BOILERS
IRON WORKS

SOLE MANUFACTURERS
Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any
shoe before introduced.
Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine
for dry crushing in use, doing easily, the work of ten
stamps with one quarter the power.
Stamp Mills with all late
Improvements.
Send for prices and information. Address
C. F. HENDRIE, Prest. **R. J. CORY**, Secy & Treas.
1v22-3m kjes Council Bluffs Iowa.
[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,
Successors to
Wm. J. Young & Co. **Wm. J. Young & Son,**
Wm. J. Young.

MATHEMATICAL
AND
ENGINEERING
INSTRUMENT MANUFACTURERS
At their old location
No. 43, North Seventh St. Philadelphia Pa.
Have so increased their facilities as to believe they can
in future keep a full supply of instruments on hand.
Tapes, chains, stationery, draughting instruments and
all supplies for field or office. Original manufacturers
of Burt's Solar Compass. 4v-22

THE
FORSMAN
Iron-Cast French
Burr-Stone Mills
Are the best for grinding or Flouring.
Was never so improved and better work with
the same power than any other.
Stone, 18, 20, 24,
and 30 inches.
Weight, 450,
650, 1000 and
1500 pounds.
All kinds of
MILLS
FURNISH
ING.
We build com-
plete
MILLS including
all the latest
improvements
and are
able to
run
all
portable
MILLS.
Send for Circular.
J. A. FORSMAN, Agt.
No. 73 South 3rd St.
CHICAGO, ILL.

PAPER-BOATS.

Have been rowed by the winners of NINETEEN races since
their introduction in 1868. In January next, will be
published our ILLUSTRATED CATALOGUE AND
OARSMAN'S HANDBOOK FOR 1871, which in addition
to containing fine wood cuts of our boats and latest im-
proved models, will give

A complete list of all the Boat Rowing and
Sparting Clubs in the U. S. and Canada,
besides much other information of interest to oarsman.
Every one interested in boats or rowing should have
a copy. For catalogues, circulars and price list, address
WATERS, BALCH & CO,
303 River Street, Troy, N. Y.
23v24-3m

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Withmar Glass and Queensware Company.
IMPORTERS, MANUFACTURERS AND DEALERS IN
China, Glass and Queensware, Lanterns, Looking Glasses
&c., &c. 113 N. Main Street, St. Louis Mo. The col-
orated Novelty Lanterns always on hand. 3v22-6ms

Miscellaneous.

(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.
900 pages, large 4-to, profusely illustrated.

This is the only compend of
GAS LIGHTING
ever projected, and will be the standard work of refer-
ence among
Companies,
Manufacturers,
Engineers,
Patentees, and
Scientific Men
Generally.
Price \$15.00, Payable on Delivery.
It will be sold only by subscription, which should be
dressed to the Compiler,
JAMES R. SMEDBERG,
Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

R. H. McDONALD & CO.,
WHOLESALE
DRUGGISTS,
Have removed to the southwest corner of Market and
First streets and now offer to the trade, and at low prices
and on favorable terms the best selected stock of pure
Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sun-
dries and Toilet Articles.
etc., on the Pacific Coast. Buyers are
Particularly Requested
to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3mins S. W. Cor. Market and First streets.

THE ANGEL'S QUARTZ
Mine Shaft is over 400 Feet
Deep, and is kept free from
water in its lowest level by the
BLAKE STEAM PUMP
Sold by **BERRY & PLACE,**
112 California st., San Fran-
cisco. 4v22

FROM THE WEED
\$65 Sewing Ma-
chine—the
WHOLE WORLD
being judges—as they
are the LAST, so also
are BEST! Why?
Because the WEED
Machines
work
easier,
run
longer,
and
are
more
VARIED. Buy the
LATEST always. Call
and see S. E. Hoar, 329
Kearny St. S. F. Ast

THE NEW TYPE
ON WHICH
THE SCIENTIFIC PRESS
is printed, is from the
CALIFORNIA TYPE FOUNDRY,
405 and 407 Sansome St.
GEO. L. FAULKNER, Agent.
1v22-3mins

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger	Express	JANUARY 22,	Express	Passenger
Sunday	Train	1871.	Train	Sundays
except d	Daily.		Daily.	excepted
4:00 P.M.	8:00 A.M.	San Francisco...	5:15 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
	7:30 A.M.	San Jose	5:40 P.M.	
7:58 P.M.	12:10 P.M.	Stockton	1:46 P.M.	8:35 P.M.
9:33 P.M.	2:10 P.M.	Sacramento	11:15 A.M.	7:00 A.M.
	4:10 P.M.	Marysville	8:10 A.M.	
	9:00 P.M.	Sacramento	4:20 A.M.	
		Sacramento	11:45 A.M.	
		Colfax	8:45 A.M.	
		Reno	1:00 A.M.	
		Winnemucca	4:05 A.M.	
		Battle Mountain	1:25 P.M.	
		Carlin	10:15 P.M.	
		Elko	8:45 A.M.	
		Carlin	10:15 P.M.	
		Carlin	10:15 P.M.	
		Carlin	10:15 P.M.	
		Carlin	10:15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6 50
8 00, 9 P., D 10 20 and D 11 10, a. m. 12 00, 1 50, D 3 00, 4 00, 5 15
6 45 and B 11 30 p. m.
LEAVE BROOKLYN, B 5 15, B 6 30, 7 40, 8 50 and 10 00 a. m.,
1 30, 2 40, 4 40 and 6 25 p. m.
LEAVE OAKLAND, B 5 25, B 6 40, 7 50, 9 00, 10 10, 11 00 and
11 50 a. m., 1 40, 2 50, 3 50, 5 05 and 6 35 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7 20, E
9 00, B 9 30 and E 11 30 a. m. 1 30, 4 00 and 5 30 p. m.
LEAVE ALAMEDA, B 4 15, B 7 00, E 9 30, B 9 40 and E 11 00
a. m. and 2 25 p. m.
LEAVE ALAMEDA, B 5 15, B 7 36, E 9 06, B 9 36 and E 11 36 a.
m., 1 35 and 4 05 p. m.
B Sundays excepted. E Sundays only.
D To Oakland only. C To Fruit Vale only.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.

CALIFORNIA PACIFIC
RAILROAD &
STEAMER NEW WORLD
VALLEJO

The following time will take effect
Saturday, October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Callisto.	Sacramento.	Marysville.
5:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:45 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leave	Leave	Leave	Arrives at
Marysville.	Callisto.	Sacramento.	S. Francisco.
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.
4:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

TICKETS for sale at 313 Montgomery street, or on board
steamer New World. **R. S. MATTHEWSON**, Superintendent.
S. F. — Branch Office of Branch Office of Union Telegraph Com-
pany, Fruit and Vallejo street wharf.
L. C. FOWLER, General Freight and Passenger Agent.
Vallejo October 1, 1870. 13v2-1y

PENNSYLVANIA CENTRAL R. R.

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—
61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York.

WITHOUT CHANGE!
With but one change to Baltimore, Hartford, Providence,
Springfield, New Haven, Worcester, Boston; And
is the most direct route to Washington city.

Express trains on this line are equipped with WEST-
INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers
will find this route especially desirable, as it gives them
an opportunity of seeing the finest views among the
Alleghany Mountains, besides visiting Pittsburgh, Phila-
delphia, and New York without extra cost.

All New England Passengers holding through
tickets will be transferred, with their baggage, to Rail
and Boat connections in New York without CHANGE.

Through Tickets via this great short route for sale in
San Francisco, at 422 California street, 208 Montgomery
st., 306 Montgomery st., and at Ticket office of Central
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne,
Denver and Omaha. Be sure your tickets read via
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago
route. **T. L. KIMBALL**, Gen'l West. Pass. Agt.
Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,
4v22-1y San Francisco, Cal.

Notice.

To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,
Nos. 31, 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v21-3m

London Agency.—BATES, HENDY & Co., 4 Old
Jewry, E. O., & Geo. Street, 30, Cornhill, E. C. London,
will receive subscriptions and advertisements for the
Press.

New Publications.

MAN AND WOMAN, Considered in their Relations to each other and the World. By Henry C. Pedder. New York, Samuel R. Wells, Publisher, 1870. 8vo. pp. 116. For sale by A. L. Bancroft & Co., S. F.

This is one of those books which are now coming in numbers before the public, as the question of the social relations are pressing themselves on the attention of the people. Gibbons (we believe) said that civilization appears favorable to all virtues except chastity, a statement that has many plausible grounds, although perhaps not to be taken as a necessary, or even an actual, truth. Mr. Pedder, in this book, seeks to induce a careful survey of human nature as the only correct basis on which to rest our social hypotheses. We give one short extract which seems to us worthy of attention.

"As immortal beings, it is disgraceful for us to suppose, as many apparently do, that we are placed in this world merely for the gratification of our appetites and the propagation of the human race. True, there are certain conditions with which this view of the matter may be surrounded, which are calculated to suggest to us much that is beautiful and true concerning the ends for which we were created; but to confine our ideas to this purely carnal view is low and groveling in the extreme. The more comprehensive the mind of the student, and the more perfect his knowledge both of nature and revelation, the more evident it must be to him that the main purpose of the Almighty in the creation of the universe was and is the formation of a heaven out of the human race."

MINES AND MINING OF THE ROCKY MOUNTAINS, the Inland Basin, and the Pacific Slope. Comprising Treatises on Mining Law, Mineral Deposits, Machinery, and Metallurgical Processes. By Rossiter W. Raymond, U. S. Commissioner of Mining Statistics. New York. J. B. Ford & Co., 1871. Price \$4.50. For sale by A. L. Bancroft & Co., S. F.

We have previously (Dec. 10, 1870,) spoken concerning this work. It comprises a description of all the gold and silver mining districts of the West; a discussion of the laws affecting their titles; an essay on mineral deposits in general, their occurrences, characters, and classification; twenty-seven chapters, profusely illustrated, on the mechanical appliances of mining and on metallurgical processes; and an appendix, with valuable tables of statistical information. Three alphabetically arranged analytical indexes, one of Mines, one of Mining Districts, and one of Subjects, complete the work.

NOTICES OF MINING MACHINERY AND Various Mechanical Appliances in Use, chiefly in the Pacific States and Territories, for Mining, Raising and Working Ores, with Comparative Notices of Foreign Apparatus for similar Purposes. By W. P. Blake. New Haven, Conn. C. C. Chatfield & Co., 1871. For sale by A. L. Bancroft & Co., S. F.

This is a re-print of that portion of Commissioner Raymond's report which was written by Prof. Blake. It treats of a subject of the highest importance to miners, and one which has heretofore not been given, as a whole, in any work within the reach of the general mining community.

Prof. Blake is well-fitted for such a work as this and has succeeded admirably well, especially when we consider that his time was limited, and only the intervals between other daily duties could be devoted to the work. The notices were written in the winter of 1869-'70, and since the manuscript was handed to the printer, considerable has been done in the way of improved machinery on our coast. But this does not lessen the value of what is there described and given.

The work contains chapters on the Manufacture of Mining Machinery in California; Breaking Down Rocks and Ores; Boring and Excavating by Machinery; Transportation, Ventilation, etc.; Breaking, Crushing and Grinding Ores; and Separation and Concentration. It is profusely illustrated and can safely be recommended to our mining public.

FENCE LAWS IN ILLINOIS.—The Legislative Farmer's Club, of Illinois, is an Association designed to assist the law makers, by presenting them with the views and wishes of the Agriculturalists. Foremost in the abolition of fence laws, which eat up the farmer who bears the great burden of taxation. It is recommended that stockmen be obliged to fence in or otherwise herd their cattle, or pay whatever damages their strays inflict by plundering the farmer's crops. The Club advises a tax of one dollar on dogs, male, and two dollars on females, and that dogs uncollared be without the protection of the law.

Diamonds in Trinity Co., Cal.

The Trinity Journal, of Feb. 25, has the following:

"The possibility of diamonds being found in this county has been suggested at different times by scientific men. Not long ago, we listened to a narration of how what was in all probability a diamond of great value, was found in this basin and, through ignorance of its real character, afterwards mislaid and lost. Several years ago, Mr. I. Woodbury, while mining the red flat above Garden Gulch, found a singular looking stone in his bedrock ditch and picked it up. As it lay in the ditch it appeared to be a piece of metal, but upon closer inspection it showed to be a stone having a glazed metallic coating. The crust was broken off on one side apparently by a blow from a pick, revealing the grain of the stone. Mr. Woodbury thought it was a queer looking pebble and so thinking laid it up on the side of the ditch and went about his work.

Passing on a few feet, he had occasion to turn around to give directions to some person behind him, when his attention was arrested by the strange results produced by the sunbeams falling on the odd seeming pebble. The fractured side happened to be up and reflected the sun's rays in a brilliant flame mainly of a bluish tint, but showing the various tints of the rainbow and blazing up in size and shape much like a large dining glass. Never having seen the like before, Mr. Woodbury thought to keep it as a curiosity and told his brother to put it away. Having read an article in the MINING PRESS in relation to these precious stones, Mr. Woodbury became satisfied that it was a diamond that so much enlisted his curiosity. After making diligent search and inquiry he has been unable to find it. The mislaid diamond was half an inch or more in diameter, and being doubtless of the first water was of great value, perhaps running well up into thousands. Moral—Miners, don't be careless with odd looking pebbles or pieces of metal. Fortune may come knocking at your door and be entertained unawares or worse yet you may slam the door in her face.

BORAX PROSPECTORS.—The Silver State, of Humboldt county, Nevada, in speaking of the trip of a prospecting party says: This same party unexpectedly ran among the "Borax" prospectors, who were numerous to be seen all over the desert in the vicinity of Hot Springs, caving here and there in the alkali. Borax they had found, and upon looking over the vast desert monuments were espied here and there, enclosing the whole alkali domain (nearly), and upon inquiring of them how much territory they had taken up, they answered, "Only forty quarter sections." They certainly have borax, but the extent of it remains to be ascertained. In fact an offer has been made them already for their right. With them it is no longer gold or silver, or hills, but desert and borax. Two of this prospecting party returned with the borax mania, and are now preparing to take up some desert ground not far from this town.

WOMAN'S RIGHTS IN A NEW DIRECTION.—At a miners' meeting, held on the 21st. of February, in Lake Mining District, Lake county, California, the following resolution was passed and ordered placed in their By Laws.

Resolved, That all persons over 16 years of age, are entitled to locate mining ground, and all locators, male or female, are entitled to vote at any miners' meeting.

Lake District is a cinnabar mining locality, and is at this time looming up into considerable importance, from the fact that several very valuable cinnabar mines have lately been opened, which give evidence of vieing with the Almaden mine.

We are rather inclined to the opinion that our Lake District miners have an eye to coaxing a goodly number of young ladies up their way. It probably would be a happy feature for our lonely miners of other districts to take notice and follow the good example set by Lake District.

QUININE.—There is, in the United States of Columbia, a region called San Martin, of which but little is generally known, but which is said to contain vast numbers of the Peruvian bark trees, whence is extracted the highly valuable quinine. Such an extent of Quina forests as San Martin is said to possess,—a territory 40 leagues long and 5 or 6 leagues wide,—is worth many a gold mine.

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D. Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N. Long. 121° 29' 44" W. Height above mean low tide at San Francisco, 74 feet. Height of surface of mercury, 94 feet. The amount of cloudiness is designated by figures, 10 being entire cloudiness; 5, half cloudiness; 0, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from three daily readings at 7 A. M., 2 P. M., and 9 P. M., in uniformity with the arrangements of the Smithsonian Institute.

1871.	DAILY MEANS OF				THERM.		WIND.		RAIN.	
MONTH	Barometer Corrected.	Temp. Air.	Temp. Water.	Temp. Soil at 100.	Force of Wind.	Amount of Cloudiness.	Maximum.	Minimum.	Range.	General direction from which it moves, and the Force.
AND DAY.										
FEBRUARY.	INCHES.	DEG.	DEG.	DEG.	0-10.	INCHES.	DEG.	DEG.	DEG.	0-10.
Sunday.	19.29 55.50	64	23.6	7	59	62.5	S. E.	2	1	.....
Monday.	20.29 58.52	60	32.1	10	48	43.15	S. E.	4	0.140	.....
Tuesday.	21.30 60.43	81	24.5	10	49	40.09	S. E.	4	0.556	.....
Wednesday.	22.30 57.74	60	17.6	10	47	45.15	S. W.	5	0.145	.....
Thursday.	23.29 57.41	62	10	20	20	54.34	N. & S.	2	.....	.....
Friday.	24.29 56.45	67	20	20	20	54.34	N. & S.	2	.....	.....
Saturday.	25.30 59.49	69	20.7	0	58	35.23	S. S.	2	.....	.....

* Thermometograph. † Rain.

REMARKS.—We have experienced during the week the heaviest rains of the season, measuring, as shown in our table, nearly one and a quarter inches, and swelling the aggregate of the season, in this locality, to 5.369 inches. The storm on the night of the 20th was very general, extending over the mountains into Nevada,—the high wind causing considerable damage everywhere,—and accompanied with electrical disturbances unusually severe, particularly in San Francisco. The oscillations in the mercurial column have been remarkable. From the minimum of the season, (29.021 inches) on the evening of the 22d, it rose to 30.472, corrected for temperature, on the morning of the 25th, and still reads at a high figure at the present writing; (27th) indicating a continuance of the prevailing fine weather. Though comparatively light, the rains thus far have fallen under such favorable circumstances, viz.: prolonged cloudy weather and the absence of drying winds, as cannot fail to inspire confidence in the growing crop.

A ROCKY MOUNTAIN CANAL.—We find a communication in the New York Tribune, suggesting that a canal be built to connect the waters of the Missouri with the waters of the Columbia. The project throws in the shade our proposed canal from the Jefferson river to Helena. Who knows but what, in the course of time, the suggestion offered by the Tribune correspondent may be carried into practical execution? We quote as follows: "As this is the era of ship canals, perhaps one that would make a communication by water from the Atlantic to the Pacific may be worth consideration. A ship canal from the Missouri River to the Salmon and Columbia Rivers, will require about eighty-five miles of canal and about four locks. The Rocky Mountain ascent in that neighborhood is very gradual. When travelers are on the summit they do not realize that they are on an elevation until told that it is the highest land in the pass. The canal would require locks around the Great Falls of the Missouri. The most direct route for a canal is from Horse Prairie Creek to the Salmon River, which is deep and broad, and down the Columbia to Rockland Falls, where a lock would be needed. Then there would be one unobstructed water-course from St. Louis to the Pacific Coast. This would open our northern territories to civilization through Dakota, Montana, Idaho and Oregon.—*Helena Herald.*

PSYCHOMANCY.—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Fascination, or Soul Charming, 400 pages. Full instructions to use this power over men or animals at will, how to Mesmerize, become Trance or Writing Mediums, Divination, Spiritualism, Alchemy, Philosophy of Omens and Dreams, Brighten your Home, Guide to Marriage, &c.; 200,000 sold. Sent by mail in cloth for \$1.25, paper covers, \$1.00. The Philadelphia Star speaking of the book says its author is HERBERT HAMMOND, Esq. A celebrated Psychological lecturer, and the publisher, T. W. EVANS, one of the oldest Perfumers and Publishers in the city, the mention of whose name is a sufficient guarantee of the merits of the work. Mr. EVANS has spent \$30,000 already in advertising and getting out this extraordinary book. Skeptics in Psychology read and are convinced of this wonderful occult power.

NOTICE.—Any person willing to act as Agent will receive a sample copy FREE. No capital is required, all desirous of genteel employment should send for the work, inclosing 10 cents for postage, to T. W. EVANS, 418 Eighth street, Philadelphia, Pa. m4-lam3t

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoes, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced a Cocoa of a delicate aroma, a delicate and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home use and invalids we commend it to every one who desires a agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chicago Mills, Bruges, Belgium. fe25-ly

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, OR Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v13-6m B. F. HOWLAND

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 473 Brannan street. 24v19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st/70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4jy72, that he has paid to the 4th of January, 1872; 4j10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

MARIPOSA, Dec. 27th, 1870.—Messrs. Dewey & Co. Pat on Agents.—Gentlemen.—Allow me herewith to tender you my sincere thanks for the efficient assistance you have tendered me in securing my patent and other papers, as well as the promptness and energy displayed by you in our business transactions.

Very Respectfully Yours, JAY R. PALMER.

A GOOD LOT FOR SALE VERY CHEAP, 30 feet front by 127½ feet deep, facing the south, on Sacramento street, east of Van Ness avenue. Very desirable. All but \$1,000 can remain on security if preferred. Address SCIENTIFIC PRESS OFFICE, 414 Clay street, San Francisco.

E. J. FRASER, M. D., No 108 Stockton Street, S. F., Cal.

Sonora Hotel, T. BRODIGAN,.....Proprietor Best Meals and Beds in Sonora, Cal. fe25-3m

OCCIDENTAL Insurance Company OF SAN FRANCISCO.

ash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President. B. ROTHSCCHILD, Secretary. 20v17

GIANT CEMENT. GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crochery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT. MINERS' RUBBER CEMENT.



The PAIN KILLER is by universal consent allowed to have won for itself a reputation unsurpassed in the history of medical preparations. Its instantaneous effect in the eradication and extinction of Pain in all its various forms incident to rheumatism, neuralgia, and the unsolicited written and verbal testimony of the masses in its favor, have been and are its own best advertisements.

The ingredients of the PAIN KILLER being purely VEGETABLE render it a perfectly safe and efficacious remedy taken internally, as well as for external applications, when used according to directions. The stain upon linen from its use is readily removed by washing with alcohol.

This Medicine, justly celebrated for the cure of so many of the afflictions incident to the human family, has now been before the public over THIRTY YEARS, and has found its way into almost every corner of the world; and wherever it has been used, the same opinion is expressed of its medicinal properties.

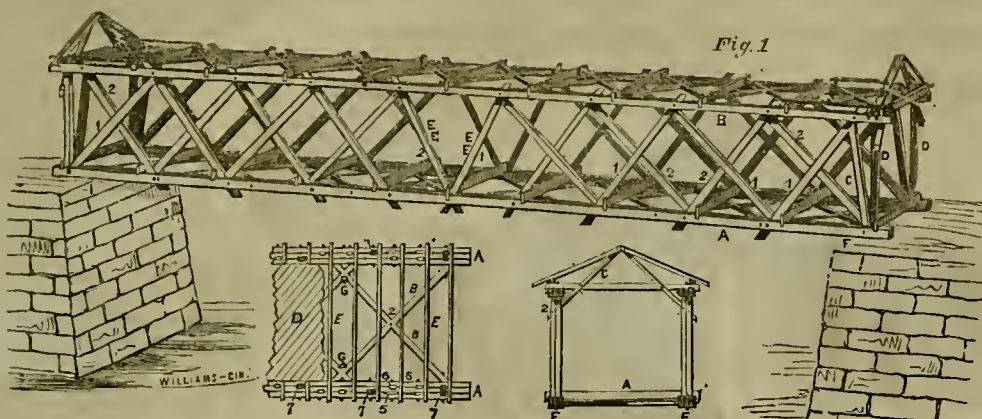
In any attack, where prompt action upon the system is required, the PAIN KILLER is invaluable. Its almost instantaneous effect in Relieving Pain is truly wonderful, and when used according to directions, is true to its name, a PAIN KILLER. mel4-lm

MILLER & HALEY'S MILLS, BERRY STREET, Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of cast-iron, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers. 19v21-3m MILLER & HALEY,

PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.



RUSS PATENT

MONITOR MOLDING MACHINE,

MADE BY

R. BALL & CO., Worcester, Mass.

Manufacturers of the latest Improved WOOD-WORKING MACHINERY for Planing Mills, Car Shops, Agricultural Implements, Furniture, Sash, Blind, and Door Factories, etc., etc. Send for Illustrated Catalogue and Price List.

RICHARD BALL.

E. P. HALSTEAD.

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

LEA & PERRINS'
CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good

SAUCE. The success of this

most delicious and

unrivalled Condiment

having caused certain

dealers to apply the

name "Worcestershire Sauce" to their

own inferior compounds, the public is

hereby informed that the only way to

secure the genuine is to ask for LEA &

PERRINS' SAUCE, and see that their names

are upon the wrapper, labels, stopper and

bottle.

Some of the foreign markets having

been supplied with a spurious Worcester-

shire Sauce, upon the wrapper and labels

of which the names of Lea and Perrins have

been forged, L. and P. give notice that they have

furnished their correspondents with power of attorney to take

instant proceedings against manufacturers and vendors of

such, or any other imitations by which their right may

be infringed.

Ask for LEA & PERRINS' Sauce and see name on

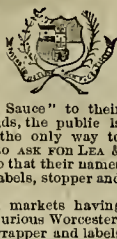
wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worces-

ter; Croese and Blackwell, London, &c. &c., and by

Grocers and Oilmen universally. Agents, CROSS &

CO., San Francisco.

CAMERON'S
STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

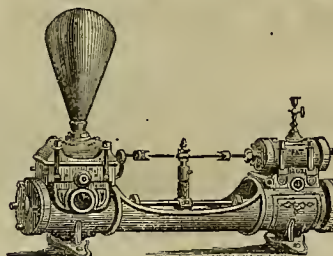
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. E.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.

Soldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME is ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.
MANUFACTURED BY J. B. BETTS, 11, WILKINSON ROAD, LONDON, AND BORDEAUX, FRANCE.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening - which is the very latest hour we can receive advertisements.

Stockholders' Meeting—Office of Silver

Sprout Mining Company, 206 Front street, San Francisco, February 17th, 1871.

Notice is hereby given, that a special meeting of the Stockholders in the Silver Sprout Mining Company will be held at the office of the company, No. 206 Front street, San Francisco, on Monday, the 27th day of March, 1871, at the hour of 2 o'clock P. M.

T. B. WINGARD, Secretary.

Taylor Mill and Mining Company—Location

of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 31st day of January, A. D. 1871, an assessment of fifty (50) cents per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixth day of March, A. D. 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of March, A. D. 1871, to pay the delinquent assessments, together with cost of advertising and expenses of sale.

By order of the Board of Trustees.

SAML S. MURPHY, Secretary.

Office, 520 Montgomery street, over Sather & Co.'s Bank, San Francisco, Cal.

fel-5w

El Refugio Petroleum Company,---Loca-

tion Santa Cruz County, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the Eighteenth day of January, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo. L. Smith.....	4	30	\$19 50
J. A. Zimmerman.....	6	20	13 00
C. Christiansen.....	7	100	65 00
W. H. Tillinghast.....	17	100	65 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of January, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction, at the office of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Tuesday, the 14th day of March, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

R. WEGENER, Secretary.

fe25 Office, 414 California street, San Francisco, Cal.

Marble Falls Mining Company,---Location

of Works: Mammoth District, Nye County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of February, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the Company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 29th day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 27th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal.

fe18-6w

North America Consolidated Mining Com-

pany—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the Company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 29th day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 27th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Sec'y.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal.

fe18-6w

Stockholders' Meeting—Globe Gold and

Silver Mining Company. Special Meeting of Stockholders.

Location of mine and works, Monitor District, Alpine County, California.

Notice is hereby given, that a special meeting of the stockholders of the Globe Gold and Silver Mining Company will be held at the office of the company, 47 Bryant street, San Francisco, Cal., on Monday, the 13th day of March, 1871, at 11 o'clock A. M. of that day, to act upon a proposition to remove the principal office of the company to Monitor, Alpine County, California, and for the transaction of such other business as may properly come before it. Dated at San Francisco, February 8th, 1871.

J. W. CHESTER,

H. SHRAEL

J. WINCHESTER,

Majority of the Board of Trustees of the Company.

fel-14t

Noonday Silver Mining Company,---Loca-

tion of Works—White Pine Mining District, White Pine county, Nevada.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 15th day of January, A. D. 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R. M. Bourne, Trustee.....	493	100	\$20 00
R. M. Bourne, Trustee.....	494	100	20 00
R. M. Bourne, Trustee.....	513	10	2 00
R. M. Bourne, Trustee.....	517	bal. 11	2 20
W. H. Barton, Trustee.....	550	100	20 00
W. H. Barton, Trustee.....	555	50	10 00
W. H. Barton, Trustee.....	559	50	10 00
W. H. Barton, Trustee.....	561	50	10 00
W. H. Barton, Trustee.....	569	100	20 00
W. H. Barton, Trustee.....	588	45	9 00
W. H. Barton, Trustee.....	596	bal. 55	11 00
Child & Jones, Trustee.....	557	50	10 00
Child & Jones, Trustee.....	572	100	20 00
Child & Jones, Trustee.....	573	33	6 60
Child & Jones, Trustee.....	586	100	20 00
Child & Jones, Trustee.....	588	bal. 11	2 20
Child & Jones, Trustee.....	590	100	20 00
Child & Jones, Trustee.....	592	100	20 00
Child & Jones, Trustee.....	596	100	20 00
Child & Jones, Trustee.....	753	50	10 00
E. Cahill & Co., Trustee.....	504	60	10 00
E. Cahill & Co., Trustee.....	712	42	8 40
E. Cahill & Co., Trustee.....	725	60	12 00
J. H. Crocker, Trustee.....	723	60	10 00
George Coudon.....	548	100	20 00
G. A. Courson, Trustee.....	514	50	10 00
H. H. Clausen.....	504	100	20 00
John Dryden, Trustee.....	307	100	20 00
W. L. Duncan, Trustee.....	512	100	20 00
G. A. Dean.....	760	25	5 00
N. Dahlen.....	747	10	2 00
R. B. Fordham.....	444	66	13 20
E. E. Kyre, Trustee.....	607	100	20 00
T. W. Fenn, Trustee.....	746	50	10 00
T. W. Fenn, Trustee.....	742	50	10 00
A. E. Hill, Trustee.....	345	50	10 00
A. E. Hill, Trustee.....	346	50	10 00
A. E. Hill, Trustee.....	380	50	10 00
A. E. Hill, Trustee.....	384	50	10 00
A. E. Hill, Trustee.....	415	50	10 00
A. E. Hill, Trustee.....	423	50	10 00
A. E. Hill, Trustee.....	424	50	10 00
A. E. Hill, Trustee.....	427	100	20 00
A. E. Hill, Trustee.....	448	126	25 00
A. E. Hill, Trustee.....	453	10	2 00
A. E. Hill, Trustee.....	461	5	1 00
A. E. Hill, Trustee.....	465	80	16 00
A. E. Hill, Trustee.....	468	10	2 00
A. E. Hill, Trustee.....	470	20	4 00
A. E. Hill, Trustee.....	473	5	1 00
A. E. Hill, Trustee.....	480	60	10 00
A. E. Hill, Trustee.....	484	10	2 00
N. H. Hall, Trustee.....	550	50	10 00
N. H. Hall, Trustee.....	551	60	10 00
N. H. Hall, Trustee.....	717	100	20 00
N. H. Hall, Trustee.....	719	100	20 00
N. H. Hall, Trustee.....	735	bal. 11	2 20
N. H. Hall, Trustee.....	773	100	20 00
George H. Hunt, Trustee.....	563	200	40 00
George H. Hunt, Trustee.....	744	50	10 00
George H. Hunt, Trustee.....	744	60	10 00
W. A. Hughes, Trustee.....	722	100	20 00
M. P. Hall, Trustee.....	763	5	1 00
Lewis Hyman.....	737	21	4 20
Conrad Harberg.....	813	150	30 00
R. O. Ives, Trustee.....	528	10	2 00
R. O. Ives, Trustee.....	236	10	2 00
Wm M. Iburg.....	367	5	1 00
R. F. Kent, Trustee.....	699	50	10 00
Wm F. King, Trustee.....	731	80	16 00
Wm F. King, Trustee.....	741	20	4 00
L. F. Loveland, Trustee.....	730	100	20 00
S. Lowenberg, Trustee.....	737	60	12 00
McDonald & Whitney, Trs.....	745	100	20 00
McDonald & Whitney, Trs.....	746	100	20 00
McDonald & Whitney, Trs.....	750	10	2 00
Mauson, S. M.....	70	bal. 12	2 40
Mitchell, J. S., Trustee.....	329	100	20 00
Mitchell, J. S., Trustee.....	302	30	6 00
Mitchell, J. S., Trustee.....	803	3	60
Martin, M. S., Trustee.....	514	100	20 00
Martin, M. S., Trustee.....	519	100	20 00
Martin, M. S., Trustee.....	681	10	2 00
Mason, Thomas.....	708	60	10 00
Osander, Julius.....	365	6	1 00
Page, Nathl.....	59	100	20 00
Page, Nathl.....	60	33	6 60
Parker, W. C., Trustee.....	661	bal. 6	1 00
Pupat, G.....	696	50	10 00
Pupat, G.....	697	50	10 00
Poor, W. S.....	799	100	20 00
Smith, P. N.....	200	10	2 00
Smith, P. N.....	201	10	2 00
Smith, P. N.....	203	10	2 00
Smith, P. N.....	217	13	2 60
Stevens, C., Trustee.....	28	100	20 00
Starkweather, J. E., Trust.....	587	bal. 6	1 20
Schmitt, B. L., Trustee.....	596	50	10 00
Sparrow, S. J., Trustee.....	709	200	20 00
Tibbey, E. S., Trustee.....	755	25	5 00
Uhler, J. Clem, Trustee.....	638	100	20 00
Uhler, J. Clem, Trustee.....	642	100	20 00
Uhler, J. Clem, Trustee.....	646	100	20 00
Uhler, J. Clem, Trustee.....	650	100	20 00
Wakel, H. P.....	14	20	4 00
Welch, H. H.....	534	7	1 40
Williams, Henry, Trus.....	653	bal. 6	1 20

And in accordance with law, and an order of the

Board of Trustees, made on the Nineteenth day of

January, 1871, so many shares of each parcel of said

Stock as may be necessary, will be sold at the office of

the Company, Room 21, Hayward's Building, 419 California

street, San Francisco, California, on Friday, the 17th

day of March, A. D. 1871, at the hour of 1 P. M. of

said day, to pay said delinquent Assessments thereon,

together with costs of advertising and expenses of the

sale.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 419 California

street, San Francisco, Cal.

fe25-6w

Eagle Quicksilver Mining Company—

Location of works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of February, 1871, an assessment of twenty (\$20) dollars per share was levied upon the mines of said company, payable immediately in United States gold and silver coin, to the Secretary, at the Company's office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Tuesday, the 4th day of April, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WAT

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors: Wm. Alvord, Wm. Norris,
Lloyd Tevis, Joseph Moore, John N. Risdon,
Chas. E. McLane.

WM. H. TAYLOR.....President.
JOSEPH H. MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-47

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minn,

SAN FRANCISCO.

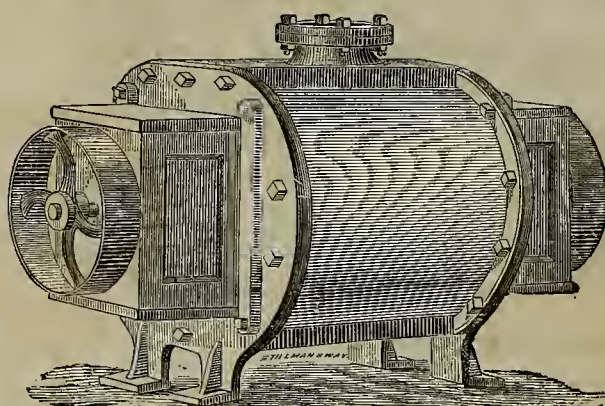
ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.
J. H. WEED V. KINGWELL.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.



Patented Nov. 1st, 1864, July
24, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting,

Foundry,

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

v43-3m

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

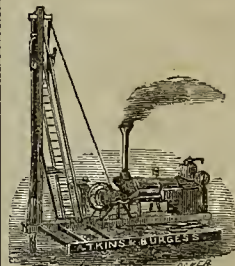
GENERAL MACHINERY,

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to.

3v22-3m



THE

CAMERON SPECIAL STEAM PUMP!

A large stock of assorted sizes constantly on hand.

DOUBLE PLUNGER STEAM PUMPS,

FOR DRAINING MINES.

Made to order for any lift whatever.

DAVID STODDART, 114 Beal st., San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
16v14-9

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER.

REAPER AND MOWER SECTIONS, BARS

AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 16v19-9y

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20-9

THOMPSON BROTHERS,
EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

SAN FRANCISCO.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16-9r

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

PACIFIC FILE WORKS,

No. 53 Beale Street, between Market and Mission,
SAN FRANCISCO.



FILES of every description made and re-cut to order.
JOB GRINDING of all kinds done at short notice. A
complete assortment of New Files constantly on hand.
Reaper and Mower Sections, Bars, etc., made to order.
All work warranted. Orders from the country promptly
attended to. No Chinese employed.
16l8-3m ROSS & HARVEY, Proprietors.

GARRATT'S CONDENSING LUBRICATOR,

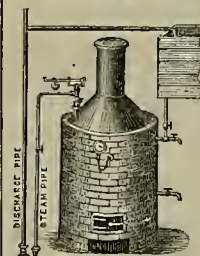


Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.

DESCRIPTION.—D, is a glass chamber which contains
the lubricant. C, is a valve and cup for introducing the
lubricant into chamber D. F, is the discharge pipe for the
lubricant, provided with an inverted siphon to prevent
steam from coming back from the steam chest or steam
cylinder into the instrument. E, a waste pipe and valve for
drawing waste water from the oil chamber before re-charg-
ing the same. B, a valve and pipe to introduce water under
the lubricant for the purpose of expelling the same; this
pipe is connected to the boiler or steam pipe therefrom. A,
is a steam condensing pipe or vessel, to provide a full supply
of clean and pure water for the ejection of the lubricant
from the oil chamber; the rapidity of action being regulated
by the valves B and G. 16l8-1f

STEAM JET PUMP.

Blackslee & Williams' Patent.—For
Water, Oils, Acids, Etc.



The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

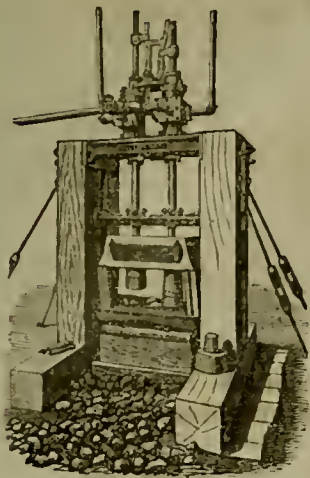
Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS.—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARGION, Stockton. Can be seen at
McAFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

SEVERANCE HOLT & CO.,
DIAMOND-POINTED DRILLS

MANUFACTURERS OF

AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Special
attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

THE WILSON
Patent Steam Stamp Mill



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enormous popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Steam Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.
F. R. WILSON,
20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolt- ing Cloths; Smit Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2v22-1yins 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold.
20v21-1f

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street, 4v21-1y San Francisco.

DARLING & CO.,

Importers, General Agents and Commission Merchants.

Machinery, Merchandize and Supplies of every description Purchased and Sold on Commission,

AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS
SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of
75 PER CENT OF OIL.

They are composed of a transparent Glass Cup, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer. Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed NATHAN & DREYFUS, New York, Jan. 1st., 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the range of pulleys.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus

we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK or FINISHED, as you may require. We are also Agents for the

Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages.

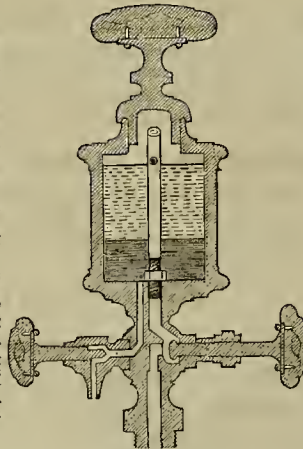
FIRST.—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind.

SECOND.—Its great economy of both tallow and fuel.

THIRD.—It is self-acting, and supplies the lubricating material only while the Engine is in motion.

FOURTH.—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this cup, by its peculiar action, delivers the lubricant



in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

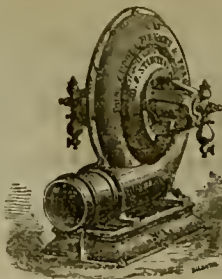
These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common compression Cups.

The above Goods are Sold at Factory Rates.

For Price Lists or information address DARLING & CO., 629, Washington Street, San Francisco, California.

Traveling Agent—R. K. COLCORD.

5v22eow-Gm



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place.

112 California st., San Francisco, who have the different sizes always in store. 4v22

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco 2v11-1f

Metallurgy and Ores.

HENRY G. HANKS,
Assayer and Chemist,

AND DEALER IN

Fine Chemicals, Pure Reagents, Minerals, Fossils, Etc. P. O. Box, 1180. 649 Clay Street, San Francisco.

NEVADA METALLURGICAL WORKS,

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 2v21-3m

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE, Manager.
J. A. MARKS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical
CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St., up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1y5

MANGANESE.

For sale—Ground Manganese of superior quality, in quantities to suit, warranted over 70 per cent. per oxide. Prepared expressly for chlorinizing purposes, by A. T. Ladd, from ore taken from his celebrated Manganese Mine in Corral Hollow. Pronounced by Mr. Mopman of the Chlorinizing Works of Nevada city, and others, as the best they ever used. Crude ore sold in quantities at low rates. Apply to BLUXOME & CASSEBOHM, 20v21-3m No. 316 California street, San Francisco.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at \$300 per foot. Several mills have been furnished with this quality of plate with satisfactory results. Old plates bought or worked. Plated goods of all kinds repaired and replated with gold or silver. Door plates made to order. All work guaranteed at the lowest rates.

CHAS. WEST,

No. 139, 3d Street, S. F.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 2v19



FOR SALE BY THE
HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.

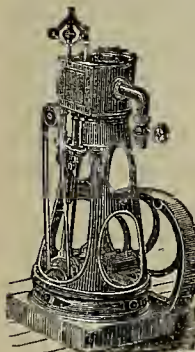
Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND
DRAWER LOCKS,
POST OFFICE LOOK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOOKS,
UNPICKABLE BANK AND SAFE LOOKS.

Pacific Agency.
OSCAR V. GERZABEK, 503 Market Street,
Box 1651, San Francisco.
Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than
the lowest. 24v21-3m

Pacific
Insurance Company,
No. 222 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT,
President.
WM. ALVORD,
Vice-President.

A. J. RALSTON,
Secretary
A. BAIRD,
Marine Secretary.

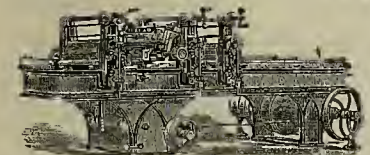


RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-ly16p

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
Orders addressed to **PACIFIC ROLLING MILL COMPANY** Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron. 9v143m 3p

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, **BERRY & PLACE,** 112 and 114 California street, San Francisco.

DR. F. HILLER,

Homeopathic Physician and Surgeon. Dr. Hiller pays particular attention to Operative Surgery and Midwifery.
Office—226 Post street, San Francisco. ma4-6m

WIESTER & CO.,
No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



This device is just what its name indicates. As a KITCHEN Tool it is indispensable. It will do any kind of perfect safety, any Stove Lid, Frying Pan, Fire Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.



New Gas Light.
This Light takes the place of the Candles, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful high t. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.
The best and cheapest hay press in the United States. Presses furnished at manufacturer cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

New England Spring Bed.
The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

Logan's Rubber Back Lash Spring

Patented May 17, 1870. The attention of Manufacturers and Mill Owners is respectfully called to the above valuable invention for

Preventing Back Lash in Mill Gearing.

No argument is deemed necessary to convince an intelligent Miller of the importance of preventing back lash, as it is well known that both the quantity and quality of the flour depends largely upon the steadiness of motion of the Burrs. Whenever the motion is communicated by an engine having two points in the revolution of the Fly-Wheel where no power is applied, there must be an unequal motion, and consequently more or less back lash. By the use of every heavy fly-wheel or a high speed, this inequality of motion may be diminished, but it cannot be entirely prevented, and more steam will be required than with a lighter fly-wheel or slower speed. By the use of

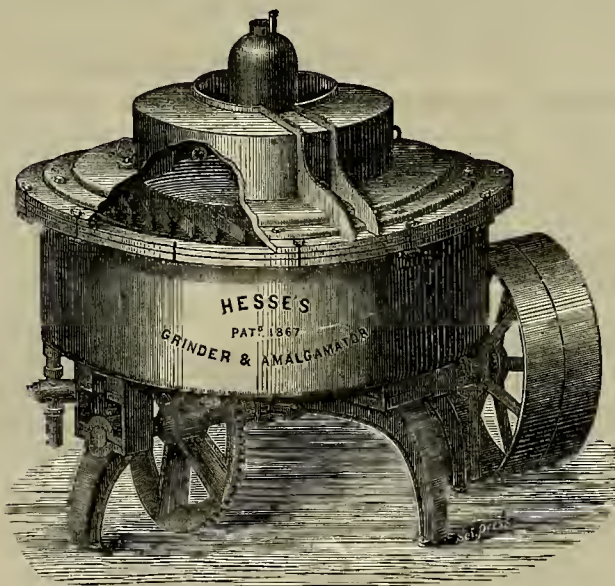
Logan's Patent Rubber Springs,

the Back Lash is entirely prevented. The pinion being loose upon the spindle, and the connection between them being by the springs, the action of the springs keeps the cogs of the pinion at all times firm against those of the driving wheel, while a continuous forward pressure is given to the spindle and through it to the Mill-Stones.

The Right to the Pacific Coast is placed in our hands for sale at a very low price. Parties interested will please write for descriptive circular or call at our office and examine the model. A large number have already been sold and put into use in the Eastern States, and three are in daily use in a flour mill in this state. Parties buying territory will be furnished with the springs at manufacturing cost from the Factory in Illinois, or will be furnished with a sample to manufacture from free of charge.

WIESTER & CO.,
17 New Montgomery Street, (Grand Hotel), San Francisco.

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

fell-1f

LORD & PETERS,
304 Battery street, San Francisco, Cal.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER, and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY **DAVID R. SMITH,**
Civil and Mechanical Engineer,
519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fel8-1f-16p

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

GEO. W. SMILEY,
24v21-3m 424 Montgomery st., San Francisco.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS,
Steam, Liqueur, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauges Cocks, Cylinder Cocks, Oil Globes, Steam Whistles, HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipes furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER AND BRASS. 6-f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



No. 17 and 19 Fremont St., near Market
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871.

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIMBLE.
Mr. J. H. GILMORE is authorized to visit those who intend to exhibit from this city. fel8-16p-1f

MAGAZINES.	P. A.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansons and
New York Ledger.....		Washington streets,
Blackwood.....		SUPPLIES ALL
Hours at Home.....	3 00	Eastern Periodicals,
Good Words.....		BY THE
Peterson's.....	5 00	Year, Month, or Number.
Lady's Friend.....		
Harper's Weekly.....	6 00	
Chimney Corner.....	15 00	
Literary Album.....		
London Society.....		
All the Year Round.....		
London Ill. News.....		

G. J. KING, P. D. KIMBALL, P. D. O'BRE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. (16p)

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
25 Bond street, New York.
Platinum Scrap and Ores purchased. 5v20-1v16pl

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER BAWDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 11, 1871.

VOLUME XXII.
Number 10.

The Smith Patent Truss Bridge.

In bridge construction American engineers have been particularly bold and remarkably successful. The necessities of a comparatively new country where high rates prevail, have lead them to attempt, and often successfully achieve, many an undertaking which previously was considered almost impossible of execution, and have called out an immense amount of inventive talent.

Among the many inventions in the construction of wooden bridges, which have been put before the public, the Smith Truss Bridge, patented in July, 1867, seems to be rapidly coming into favor. It has been extensively used at the East, and has just been introduced on our coast. It appears to have very many excellent points, and we give an illustration and description of its main features.

Fig. 1 shows a double truss bridge with part of the joists laid and the end rafters. Each side is constructed of the upper and lower chords connected by posts extending through the chords. Each chord consists of two leaves in the single truss, three leaves in the double truss, and four leaves in the try truss. Each leaf is a plank, varying from 5x8 to 7x16 in., according to the length of the span desired. These leaves are placed two inches from each other, and packed with four-inch keys or hlocks. Only one leaf is spliced in any one panel, or between any two posts, in the same chord. The manner of joining the leaves is shown in the smaller figure to the left, below Fig. 1, where a top view of the lower chords, bottom laterals, joist, and flooring is also given.

The posts are set at an angle of about 58° with the lower chord, pointing down and toward the center of the span. They are of the same thickness throughout the span, but increase in width from the center toward each end. The post and the chord leaves are each gained about the same. In the heaviest bridges this seldom exceeds one and a half inches on each side. One bolt (or two), generally $\frac{3}{4}$ inch in diameter, passes through chord and post. The head above the upper chord, and below the lower chord, is from six to ten inches long. The braces are the same size as the posts which they support, increasing in size from the center to each end. They rest on the chord two inches above and below, but the weight is chiefly transmitted from the post above to the post below. Neither posts nor braces are gained or cut where they pass each other in the center of the truss.

The bottom lateral braces are halved at the ends, but in the center are not joined. They are held in place by a cast-iron angle block, through which a bolt passes to the

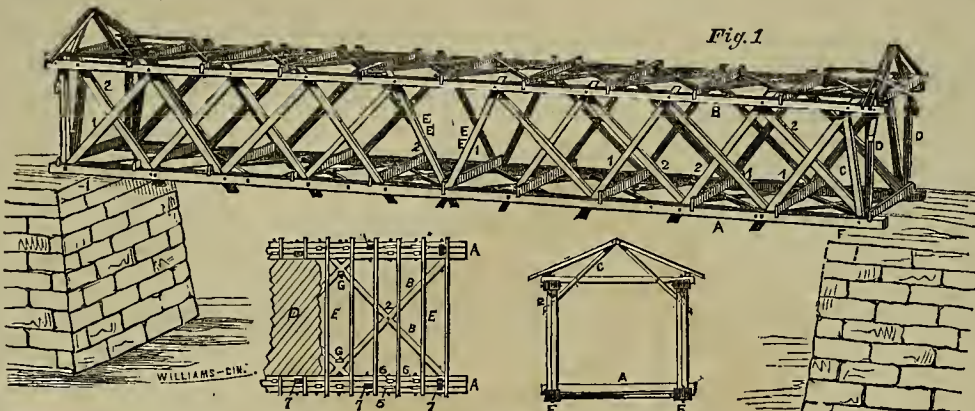
outside of the chord. The joist are laid at right angles with, and rest on, the bottom chords; the floor is laid diagonally across the joist. There is a crown or kimb of six inches to each hundred feet of span.

A cross section of the bridge is given in the smaller figure to the right, below Fig. 1, showing top tie and creel braces. These are only used at the ends of each span.

The low open truss is shown in Fig. 2. It is adapted to spans of one hundred feet and less, where a covered bridge is not desired.

The principles on which this bridge is constructed are briefly those:—That a load

of that State. One company has constructed over one hundred bridges during the present year. The Fremont Bridge over the Platte River, in Nebraska, was lot on this plan, on a tie bid with the Howe Truss. A bridge being built at Port Gibson, Miss., on this plan, has a span of two hundred and ninety feet, one of the longest, if not the longest, which we now remember as existing anywhere. We believe that several of these bridges are now being built on this coast, and that orders for others have been received; for wherever introduced and tested, as far as we know, it has given good satisfaction, and its great economy and apparent adaptability to any



THE SMITH PATENT DOUBLE TRUSS BRIDGE.

on a truss bridge strains it perpendicularly to the chords, or directly down, only when it is in the center of the span; that at all other points the strain is diagonally down-

ward, and toward the more distant support, i. e. nearly in the line of the posts; that the post so placed makes both a tie and a counterbrace.

The bridge is perfectly adjustable by placing set screws or wedges under the braces. Single spans of two hundred and fifty feet in the clear, in constant use for three years, have never shown any need of adjustment, according to a large number of testimonials. The timber being placed at an angle of about forty-five degrees, the structure is not perceptibly affected by shrinkage. The amount of material is greatly lessened by its judicious arrangement, and much dead weight of useless material, by which most bridges are ruined, thereby avoided.

This construction has been adopted by the State Board of Public Works of Ohio, for all bridges needed on the public works

who will send plans, specifications and terms to any county, township or person wishing to build, and make no charge unless the plan is used.

COPPER MINING in Cornwall, which has been steadily declining—1860, 145,359 tons of copper ore were produced, and in 1869 only 71,790 tons—is now suffering from a new form of competition, according to the statement of the London Engineer. Iron pyrites is now imported in enormous quantities from Spain and Norway, for the manufacture of sulphuric acid on Tyneside and in Lancashire. After the extraction of the sulphur from the Spanish ores, the residue is operated on for the 2 per cent. of copper which it contains; and in 1869 no less than about 4,000 tons of metal were thus obtained, the entire yield from native ore being given that year as only 8,291 tons. The importation of pyritic ore increases daily.

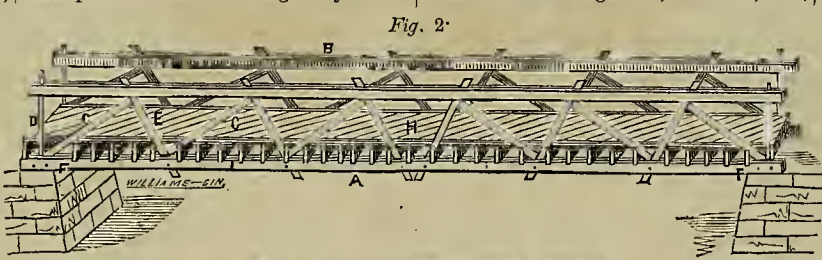
Hercules Powder.

An interesting test of this compound, which is manufactured by the California Powder Works, was made last Saturday. A full description of the powder was given in the SCIENTIFIC PRESS of April 23, 1870. It suffices then to state here that it is a mixture of carbon, sulphur and nitre, reduced to a fine powder and incorporated with nitro-glycerine so as to form a stiff paste, in which condition it is claimed to be safe to handle and transport. It will not explode on contact with fire, but burns quietly, and it may be hammered on hard wood without danger of explosion. It will explode, however, on being hammered on an anvil, or on being ignited in a closed vessel. In use it is exploded by means of a copper cap heavily charged with a fulminate.

The powder has been extensively used in a number of mines in this State, as at Sucker Flat, at Downieville, Smartsville, on the Fremont Grant, etc., etc., and also in other States and Territories. The present experiment was instituted at rather a short notice by Messrs. Budke and Howden, for the more special purpose of showing its power and utility in breaking up large masses of old iron. The iron cylinder of a large hydraulic press, designed to stand safely a pressure of 5 tons to the inch, was used. It was 8 feet long, 2 feet 3 inches in diameter, with a bore 3 inches in diameter. It was charged with some sand, rammed in, then a 5-lb can of powder, sand again and a second can of powder, then more sand and a third can, and finally a tamping of sand again, not very tightly packed; for the powder explodes very quickly.

The outer can was in contact with a cartridge fired by a fuse, the concussion therefrom being sufficient to explode the whole charge. When the explosion took place, the cylinder was broken up into many pieces with such violence as to throw fragments to a great distance, one piece, weighing half a ton, being tossed nearly 300 feet. The experimenters state that one-half the amount of powder would have been fully as effectual.

Messrs. Budke and Howden (the latter is chemist of the company), who instituted the experiment, propose to use the compound for breaking up old castings, as guns, etc., which are excellent material for foundries, provided they are in small enough pieces. The breaking up of such castings is very troublesome, and it is thought that by this method it can be effected easily and cheaply. The powder is manufactured of two degrees of strength,—No. 1, which is said to have the full power is of dynamite; and No. 2, which will be still more powerful and intended for use only in extreme cases. It can be obtained from the office, 314 California street, or from any of the company's agents.



THE SMITH LOW OPEN TRUSS BRIDGE.

MECHANICAL PROGRESS.

WOODEN RAILROADS.—The *Chicago Railroad Gazette* for Feb. 18th has an article by Wm. S. Huntington, in which he quotes the report of a Canadian committee appointed to examine the Clifton Wooden Railway, in Northern New York. We give an extract from this report: "The expense of keeping the track in repair will not, according to Mr. Hulburt, the engineer of the road, exceed the wages of two men to every three miles of road. These men will replace the worn out rails as fast as required. This does not include renewal of trestle or crih work. The 20-ton locomotive will easily take 80 tons per trip and make two trips daily—between Carthage and Harrisville, 47½ miles. The rails are made of maple, 14 feet long, 6 by 4 inches, laid edgewise. Mr. Hulburt suggests that rails would be best 7 by 3½ inches. The rims of the wheels are like those used on iron railways, only wider, and the flanges a little beveled, so that the flange, in pressing against the rail, does not cut it. We did not see a single rail "broomed up" or cut on the inside, and only a few on the outside, where the heart of the rail had been laid uppermost. The "switches" are made in the usual way, the rails being kept together with iron rods when required to be moved. The "keys" are made of maple plank. The rails are sunk into the ties (which are cut into 6 inches wide and 4 inches deep) and are kept in place by wedges or keys twelve inches long by four inches wide, and one and a half inches thick at one end by three-fourths of an inch at the other and driven in on the outside of the rail, keeping it against the shoulder of the ties. The ties are put down without being sided. There has not been a single car off the track since the road went into operation. The country through which the Clifton Railway is built is not only broken but even mountainous, and there is no difficulty, in our opinion, in constructing such a railway in almost any part of these townships. From the information obtained as to cost of labor, materials, etc., in the vicinity of the Clifton road, we are of the opinion that the cost of grading, furnishing ties and rails, and laying the same, with a moderate allowance of rolling stock, sufficient for some years, will not exceed for our railroads \$5,000 a mile exclusive of large bridges—and this to build in a more permanent manner than the Clifton rail is built. We are fully convinced of the practicability of wooden railways, where the principal object is a freight traffic at rates of speed from 8 to 12 miles an hour; and that next to an iron railway, or where the cost of an iron road is too great to be undertaken, wooden railways can be cheaply built, economically carried on and a large paying business done by their means."

TRAMWAY FOR CITY STREETS.—The *American Artisan* for Feb. 22nd, gives Prof. Tillman's description of his own device for this purpose:—"Employing iron as the material for the wheel-ways or tramways, I would," he says, "cast it in hollow blocks, so as to be interlocked, and its face could be provided with a series of smooth raised surfaces, alternating with impressions or indentations; and the raised surfaces could be so arranged that the wheel would be constantly sustained on a true grade by rolling over one raised surface, which should touch the middle of the tire, or rolling over two raised surfaces, which either simultaneously or alternately would give a bearing to the wheel-tire near its sides. The transverse depressions thus formed allow the toe-calk or fore part of a horseshoe to sink below the raised or grade surface, and by means of such surfaces the horse would find a sufficient bearing against which to exert the leverage of his foot. A pair of iron paths, each about one foot wide, and placed four feet and a third apart, would provide a tramway suitable for vehicles of various widths, embracing the pleasure carriage, cart, lumber-wagon and omnibus, and a pathway for a pair of horses between such tracks. The tramway could be made of hollow cast iron blocks, each about a foot long, with a projection on one end and a recess on the other, so that when brought together and interlocked, the pressure on the edge of one block would be transferred to the center of the next. Such blocks could be laid directly on pure sand, or be filled in from beneath with wood and laid on a perfectly solid and smooth foundation."

SPIRAL CUTTER FOR PLANERS.—The *Manufacturer and Builder* for March describes More's patent device for a cutter, so constructed that it may be substituted for the ordinary knife without any alteration of the planing machine. We quote:—"Instead of making the knife straight, Mr. Moore twists it around the cylindrical body and makes the edge a spiral, usually having one third of a revolution, but it can be made of any twist; the greater the twist, the less the power required. Only a small part is in the wood at a time, and the edge has a drawing motion. On account of this, the work is very much smoother than any thing that can be done with the ordinary cutter head with its direct chopping. Finished work can be turned out, such as door-panels which are ready for sand-papering. Some of the gnarled, crooked walnut worked by this machine was as smooth as the jointer of the carpenter would have left it. The shavings are all sent to one side, showing the work clean as it leaves the machine, which is an important point. It can be made right or left hand twist so as to throw the shavings upon either side. The noise is very much less than that of the ordinary cutter. In fact, it can not be heard above that of the machine unless it is in the wood. Having a shearing motion, the knives do not become dull nearly as fast as those of the ordinary straight pattern. Another point worth attention is the mode of sharpening. This is done without taking the cutter from the machine, by taking off the driving-belt and substituting another running over the feed-pulley in its place. A file or emery-plate is then placed in a suitable block and passed along the bed under the knives. This brings them down "true." A bone then takes the place of the file, and finishes the job."

CAST RAILS.—The *N. Y. Stockholder* for February 21st has an article upon the Sherman steel process so called—really the invention of Mr. Atwood, of Ohio, but named in English journals after his nephew, Mr. Sherman, who introduced it across the water. We have copied several commendatory notices of it from the journals aforesaid. Mr. Atwood makes by it cast steel axes directly from 70 per cent. ore at one melting. It now promises to have another and very extensive use. We quote:—"Last week, at Bridgeport, in Connecticut, the process was employed for casting railway bar. The result was perfectly satisfactory, and the conclusion seems to follow that the best possible steel rails may be turned out at little over the cost of the poorer English rails landed at New York. The difference between such price and that at which bars made under this process may be offered in this market, will express the profit of the manufacturer, less the inventor's royalty. But the difference to the railway companies is far larger than this, since rails may be made by this treatment wherever pig and scrap iron can be found. The expensive apparatus for rolling is dispensed with. The rails may be cast in pits, in cheap works. Every railway concern has refuse iron enough at command to justify the use of an inexpensive furnace of its own to cast rails of the Atwood steel. The poorest pig iron as well as the best are indifferently used under this process."

SAFETY CAR-TRUCK.—The *Rochester Democrat* thus describes a recent invention:—"The reader will picture in his mind an ordinary car-truck, with eight wheels. Between the forward wheels are four cone-shaped wheels of less diameter, with flanges on the outside, two of which are suspended on an independent axle from each side of the car-truck, a few inches above the level of the track. One of these wheels is on the outside of the rail and the other on the inside. The small ends of the cones face each other, but are a little over the width of the car-wheel apart. Having an independent axle, they are not in motion only when the car is off the track. On both the forward and rear trucks these wheels are hung, and their positions on each side of the car, and at each end are the same as described above. Now when a car-wheel leaves the track, either by reason of its breaking by a displaced or broken rail, an open switch, or turning a sharp curve, the car drops down on these cone-wheels, and they temporarily take the place of the main wheels, and the car rolls on the track as it did before. A shock will be felt by the dropping of the car which will give notice of the accident. The flanges of the cone-wheels will bind on the track and act as brakes to a certain extent."

SCIENTIFIC PROGRESS.

THE PHOENIXVILLE BONE CAVE.—The *U. S. Railroad Register* gives an extended notice of the bone cave recently discovered in Chester County, Pennsylvania, near Phoenixville, by Mr. Wheatly. Prof. Cope exhibited a large collection of the smaller bones at a late meeting of the American Philosophical Society. It is said to be one of the most important discoveries yet made upon the continent. The remains found consist of mammals, reptiles, insects, and plants. Among them are three species of gigantic sloth, one as large as the Megatherium of Europe. Five feet of a mastodon tusk, which when entire measured eleven feet, was found in fragments. Bones of the cave bear, two species of horse and several species of tapir, were found. The collection is also rich in the bones of the smaller animals. Further investigation will determine more definitely the age of the deposit. Prof. Cope referred, in the course of his remarks, to certain similar fossil animals of acknowledged past-pliocene age, found in cave earth on the small islands of the Antilles. W. D. Gunning writes to the *Tribune* as follows:—"The bones in this Phoenixville cave are overlaid with glacial drift. I have examined in the Philadelphia Academy a section of the cave drawn by Professor Cope. This section tells its own story. The animals whose remains are entombed in the cave lived before the epoch of the great northern drift. In those remote times America seems to have been the land of the horse, the rhinoceros, the elephant and the camel. If this horse should prove to be new, it will be the 18th species known to have lived in America before the drift period. I do not understand that any human remains or any implements fashioned by human hands have been found in the Phoenixville cave. At this stage of the investigation we cannot say that this discovery throws any light on the question of the antiquity of the human race."

NOTE ON METAPHOSPHORIC ACID.—Prof. E. N. Horsford sends the following to the editors of the *American Chemist*:—"If you precipitate common phosphate of soda with nitrate of silver, adding sufficient ammonia to keep the liquor neutral, and, having washed out the precipitate, mix it mechanically with three times its volume of purified Berkshire sand (granular silica), then dry and ignite the mixture, you will observe a reddening of the mass, indicating a change in the molecular arrangement. If now you pour over the mass diluted hydrochloric acid, less than enough to unite with all the silver, and let its action continue for some hours till all the hydrochloric acid has disappeared as chloride of silver, then, on filtering off the clear liquor, you will have an acid liquor that precipitates solution of albumen, white,—you will have one of the phases of metaphosphoric acid. This proof of the change produced in an anhydrous trimetallic phosphate by heat, to wit, the conversion of the tribasic phosphoric acid to metaphosphoric acid, may be more satisfactory than that of the decomposition of burned bones with nitrate of silver, and the exposure of the product to sunlight, which you have witnessed, and which gives to the solution in ammonia poured over paper, the characteristic red shade, while tribasic acid with similar treatment gives the black or dark brown shade."

THE GLACIERS OF THE PACIFIC SLOPE.—Clarence King describes in *Silliman's Journal* for March, his ascent of Mount Shasta in September last and discovery of several considerable glaciers. The ascent was formerly made on the south side, where there are no glaciers, "and this is why able scientific observers like Prof. Whitney and his party should have scaled the mountain without discovering their existence." The apparent absence of glaciers in a region where such abundant indications of glacial action are found, has been remarked upon. Mr. King says:—"Travel where one will, in the high Sierras or in the more elevated regions of the Rocky Mountains, he seems to be treading the pathway of a glacier of yesterday." The report of Mr. King, containing, as it will, a full description and topographical map of the mountain and the glaciers, and of the traces of the ancient glacier system, and also of Mount Hood and Mount Rainier, will be looked for with great interest.

NATURE OF THE EARTH'S INTERIOR.—David Forbes F. R. S. delivered a lecture on this subject on January 29th. *Nature* prints it in full. We give the conclusion: "If now we suppose that the earth's interior is composed of a series of concentric zones or layers made up of substances which are of more and more dense nature as they are situated nearer the center, and that the external one is rock of a density of 2.5, a calculation will show that the center or nucleus will be about 10, or as heavy as silver. If now we suppose that the zone of molten lava, which we have already concluded must exist at a depth of about 50 miles below the surface, has a density of 3, or say even 4, to give the fullest allowance for the condensing effects of superincumbent pressure, then we should find by calculation that this zone could not extend deeper than about 400 miles, since below this depth the matter would be so heavy that its density can only be explained on the supposition that it is made up of metallic compounds, and as the density of the still lower zones would continue to increase up to the very center of the earth, the inference is that the whole of this great central mass situated at a distance of some 450 miles or less below the surface, is actually formed of metals and their compounds. Whether this great central metallic nucleus is fluid or solid may next be inquired into. According to Bunsen's theory previously alluded to, it ought to be solid, for owing to the enormous pressure to which it would be exposed, the solidification of the molten sphere should first commence at the center. This view would be quite correct if the earth was composed of highly compressible non-metallic materials; but since this is not the case, and since, as before alluded to, the experimental data already obtained indicate that neither the metallic nor the less compressible substances become more refractory in proportion to the increase of pressure, we are more justified in assuming that the central nucleus also must be in a fluid condition, and the more so, not only because we know that metallic compounds are as a rule infinitely more fusible than rock silicates, but also as the well-known high temperature of the earth's interior would, by its expanding action, tend to counteract the effects of the pressure. In summing up this inquiry, the balance of evidence appears to me to be decidedly in favor of the hypothesis that the interior of our earth is a mass of molten matter arranged in concentric layers or zones according to their respective densities, and the whole enclosed within a comparatively thin external crust or shell."

PHOSPHORUS ESSENTIAL FOR FUNGOID GROWTH.—Prof. Frankland read a paper before the London Chemical Society, Feb. 2d, on the "Development of Fungi in Potable Water." He began by alluding to the experiments Dr. Heisch had made some months back with waters contaminated with sewage matter. When to such waters some sugar was added, very soon a kind of fermentation ensued, and a rich fungoid growth made its appearance. Prof. Frankland has now repeated and extended these experiments, and arrived, with one or two exceptions, at the same results. But in the course of his researches he encountered some reactions which revealed to him that the presence of sewage matter in saccharic water is in itself not sufficient to produce fungoid growth, but that the presence of phosphates in some form is indispensable to such production. * * From all his observations Prof. Frankland drew the following conclusions:—1. Potable water, mixed with sewage, urine, albumen, and certain other matters, or brought into contact with animal charcoal, subsequently develops fungoid growth, and other organisms, when small quantities of sugar are dissolved in them and they are exposed to a summer temperature. 2. The germs of these organisms are present in the atmosphere, and every water contains them after momentary contact with the air. 3. The development of these germs cannot take place without the presence of phosphoric acid, or a phosphate or phosphorus in some form of combination. Water, however much contaminated, if free from phosphorus, does not produce them.

The number of bones broken in lunatic asylums is said to have given rise in England to the more special examination of the bones of the patients, and it is stated, that the ribs of crazy folks are more brittle than those of the sane. Through the action of the diseased brain, it is suggested, there is a wasting away of the phosphates.

CORRESPONDENCE.

Notes of Travel in Tuolumne County.

[Continued from page 131.]

Quartz Mountain and Vicinity.

The App mine, on Quartz Mountain, near Jamestown, and some six miles from Sonora, is owned by Griffing & Totten. The ledge is 1,000 feet long, and from 15 to 30 feet wide. They have a 25-stamp mill crushing 15 tons per day, but with a capacity of crushing 25. Some 20 men are employed. They are now further developing the mine, the reason of not running to their full capacity. Their rock will run from \$15 to \$20 per ton. They have a shaft down 580 feet, on an incline of 60°. The hoisting works are very complete, and run by an engine of 25-horse power.

The Heslep, next adjoining the App, and parallel with it, separated only a few hundred feet by an immense horse, is owned and superintended by B. F. Heslep, Esq. This ledge is well defined, 14-feet wide, and 1,650 feet long. Mr. H. has a 15-stamp mill, run by water power, —40-foot wheel. His tunnel is in 700 feet on a water grade. At this point it is 170 feet to the surface. Nine men are regularly employed, crushing 15 tons per day (24 hours) and the rock averages \$5 per ton.

The Knox mine, one-half mile from the Heslep, and midway between this and Poverty Hill, is 1,200 feet in length, with about a 20-inch vein. It is owned by Green, Jones & Preston. They have hoisting works run by a 30-horse power engine, and a mill of ten stamps and two arastras, now crushing seven tons per day. They employ 15 men, and have lately introduced giant powder to expedite their supply of rock, as they are not running to their full capacity. They claim to get an average of \$35 per ton out of their rock, exclusive of sulphurates.

The Golden Rule, three-quarters of a mile beyond Poverty Hill, and about seven miles from Sonora, is owned by a "Joint Stock Co.," principally of San Francisco. A. S. Phifer is its superintendent, and by the way it is opened, I should say he thoroughly understands his position. Their mill of 15 stamps is run by water power, (50-foot wheel), and is now crushing 15 tons per day (24 hours) which average \$10 per ton; 16 men are employed. This mine was originally owned by a company of Italians, and was first struck in 1863. A tunnel 500 feet in length, is run in on a grade with the mill, to which the rock is brought by car. This tunnel runs nearly east; at this point, the tunnel runs south 75 feet, where their hoisting works are situated, 87 feet underground. It cost \$36 per foot to run it. The hoisting works are run by an engine of 12-horse power. At the hoisting works there is a vertical shaft 225 feet deep from the surface. The hanging wall is of serpentine, and the foot wall of feldspar formation. The vein is from 7 to 9 feet wide, and is nearly 90 percent. slate. Free gold is found in each of the above named formations, often four inches deep in the foot wall, which goes to prove the old Forty-Niners' saying, that gold was just where you find it. This company consume about 25 lbs. of giant powder weekly for blasting purposes. Their sulphurates pay them about \$40 per ton.

Tunnels now Constructing—Placer Mines.

The Kincaid Flat Company have run their tunnel through solid rock 1,130 feet. It is estimated that they have 700 feet further to go before reaching the sink of Kincaid Flat. Week before last they made 100 feet, but have not averaged more than five feet per week. This tunnel is an excellent piece of workmanship, as straight as a line. This company have the goodwill of every person in this section, from their prompt payments and honorable dealings with all whom they have had to deal.

Miller & Burch, from Monterey county, are running a similar tunnel for draining Shaw's Flat. They are progressing finely, and the accomplishment of their work will give them a fortune.

J. H. Condit Esq., of Sonora, has moved his stock of hardware, iron, groceries, etc., to a fire-proof building, lower down in the more business portion of Sonora, and is now engaged in mining out the cellar of his former store, with good results. In one week's washing, it has averaged him \$10 per day to the hand employed, running one wheelbarrow, and only as yet washing top dirt. Several pieces were found ranging from 1 to 3 ozs.; 12 wagon-loads (to test the claim before erecting

sluices) paid him \$150. In the rear of this same building, a few years since, one 25-pound chunk was found, and several of nearly that weight. A dog, digging for a gopher, at one time scratched out a piece of quartz for which Mr. C. obtained \$70. Small pieces of float quartz are now daily found in this claim containing from \$1 to \$10 dollars in free gold. L. R. Mc.

Right and Left—An Error Corrected.

EDS. PRESS.—In the SCIENTIFIC PRESS of the 18th inst., was printed a paragraph relating to the fact that the result of walking is a tendency of the right side to outwalk the left; and your conclusion is, that a person walking some distance in a forest would find himself involuntarily going to the right of his true course. Now, to a person "up a tree" in said forest, a man whose right side was outwalking his left would be seen to go more to the left, for the reason that the left foot is the pivot upon which the body must rest more than it does upon the right; otherwise, the right foot could not outwalk it. [We are obliged to correct the corrector here. The item alluded to reads as follows:—"A scientific lecturer on walking says his experiments show that one side of the body always tends to outwalk the other side." The credit of the whole paragraph belongs not to us but to the lecturer, who states that the almost invariable tendency is to wander off to the right, rather than to the left, therein differing from our correspondent. EDS. PRESS.]

A curious illustration of this tendency of the body to revolve toward the left, is the precautionary measure adopted in military training, of always advancing the left foot first, and marking time with the same in marching. It shows plainly enough that this has been ascertained to be the only mode by which a straight line can be maintained for a long march. At what period in man's history this discovery was made, I am not informed; but it is a fact bearing upon the question at issue, which I wish you to "make a note of."

One reason for the fact that, when the left foot is not trained to the contrary, the right will always gain upon it in distance, is, that the left side of the body is the weakest and the soonest fatigued. And this also is the reason why training is necessary, in order to teach the left foot to compete with the right in marching. What is called a "forced march" of an army could never be accomplished otherwise. It has been customary to attribute the ability of soldiers to make long marches, without rest, to the measured step and the exhilaration of the music. But I think the true source of such power of endurance will be found in the gradual strengthening of the motor muscles of the left side, by the training above referred to. The movement throws the duty of resting the body more upon the right foot, and thus preserves an equilibrium of muscular force, very necessary for a long period of exercise.

The same principle applies to the exercise of the body in waltzing; it being necessary to make the right foot the pivot upon which the body revolves during most of the dancing, as otherwise the fatigue would be too great; and, besides, a revolution toward the left when long continued, reverses the circulation of the blood, and promotes dizziness.

But, notwithstanding that man by training may thus apparently reverse the order of nature, it is just as philosophical to suppose that he should walk in curves as to believe that the surface of the earth upon which he walks is curved, and abounds in myriads of minor curves also. Indeed, these facts furnish another reason for the unequal movement of the body from right to left, which has been observed. The natural tendency of two persons, in passing each other, is to go to the left; and it is only by rigid training and long practice that we are enabled to "keep to the right, as the law directs." As it is, the effort sometimes results in very ludicrous "dodging," as every person knows.

There is no such thing as a mathematically straight line, or a perfectly flat surface. It would therefore be impossible to extend two lines to infinity, or to walk upon the surface for a great distance in a straightline. It is certain that two persons starting at opposite points of the compass, and even upon widely separated parallels of latitude, and walking naturally, would meet at some point on the globe, though it might re-

quire more than one circuit to accomplish that result. They would thus perform a spiral movement toward each other, each moving to the left. This does not appear very astonishing when we consider that whole nations have thus proceeded, in their migrations from east to west, and from west to east. The Anglo-Saxon race, and the races it has drawn after it, have moved to the left in their passage across the Atlantic Ocean and the North American continent; the Asiatic races have met them half-way in their transit across the Pacific, and have moved to the left also.

There are questions of vast significance opened up to the reflecting mind in connection with the simple fact with which we started in this communication, but the limits of a periodical like yours will not permit me to enlarge upon them here. One more fact, therefore, in proof of what has been stated, and I shall close.

It has been noticed that although the heart, the seat of the circulatory system, is situated in the left side of the body, the temperature of the right side is always the highest, especially after exercise. This is an evidence not only that the right side has performed the largest share of the work, but that it is endowed with the power to perform it. The size of the muscles and sinews in the right limbs, and the generally larger development of those limbs, show that they are fitted for such performance.

Exceptions are not wanting to prove the rule. There are a few left-handed people, who do all their work with the left side; but all observing people will agree that these are not so handy in the doing of it as right-handed folks. There have been found such freaks of nature as the placing of the heart in the right side, and the liver and other viscera in the left; but all who desire that their hearts should be in the "right place," will generally find it at the left side. PHILLO SOPHOS.

Shermantown, Nev., Feb. 27.

Cope District, Nevada.

[Written for the Press.]

EDS. PRESS.—I have been taking a look at the mines of this district for a few days, and I must confess that I was not a little surprised to see the large amount of ore that has been extracted from the mines during the past winter. Most of the inhabitants left here at the beginning of the cold season, but, those who did remain have gone to work and are reaping a rich reward for their labor. The El Dorado mine, situated on Buckeye Hill and owned by Messrs. Hays & Niver, is one of the finest I have had the pleasure of looking at for a long time. The ledge is full five feet wide, running in a north-westerly and south-easterly direction, dipping at an angle of about 45 degrees. The walls are well defined and covered with a whitish clay about three inches thick. The pulp assay of eleven tons of the ore, worked at Vance's mill, was \$315 per ton. The ore is of the black sulphuret character and shows largely of horn silver. They are sinking an incline and are down about 40 feet.

Sam Handee is working the Pride of the West, and is taking out some excellent ore. He has at least seventy-five tons of ore now on the dump, and is adding to this amount daily. The Argenta Co. are down 250 feet with their new shaft, and will commence to drift for their ledge at once. All things considered, the prospects for a lively time when spring opens never looked more favorable. A. M.

Mountain City, Feb. 25.

A Curious Vocation.

We extract the following from a letter received from Calaveras county, concerning a new California industry; also concerning a Calaveras county invention:

Tarantula Cultivation.—Griddles.

A curious vocation, though perfectly legitimate. S. F. Schaffle, of this (Murphy's) Camp, is actually engaged in cultivating the above named insects, for the Eastern market, and for tourists to the "Big Trees." The construction of the cells is peculiar, and no animal, fowl, or other insect has ever yet been found that builds anything to compare with it. Their cells are from three to eighteen inches deep, with a water-proof lining, coated over with a substance looking like shammy, but as fine as silk velvet, with a door, or lid which they close after them when they go in; and when they have their young, they latch it, bolt it, and then seal it perfectly water tight. They increase about 150-fold annu-

ally. Mr. S. informs me that they increase, after transplanting, some four-fold in size, in from two to five years, after which they build a new cell, to accommodate their additional corpulency.

A new idea of griddle, on which to bake hot cakes. During my travels in this section, a gentleman gave me the following particulars of a new griddle (new at least, to me). It consists of a piece of soap stone, an inch thick, surfaced on one side and cut round to fit the stove. An iron band, with two ears, surrounds its circumference, and a bail made of wire is attached for a handle. He says he is using one, and asserts that no grease is necessary to prevent the cakes sticking to the griddle, and that the taste of the hot cakes is greatly improved.

A place of resort in summer, not generally known, is the South Grove, situated six miles from the Calaveras Big Tree Grove, from which place it is reached by trail on horse-back. It is situated between the North and Middle Fork of the Stanislaus river, and contains some 1,200 trees of the same kind as at the other grove; at least 100 of them are as large as the largest ones in the Big Tree Grove. F. C. Congdon is its proprietor, and has erected a small lunch house there, to accommodate tourists. L. R. Mc.

Curious Telegraph Cable Statistics.

The Atlantic cable, although it is only about an inch in diameter, covers an area of over a million square feet of the earth's surface, that is to say, about 23 acres of ground at the bottom of the Atlantic Ocean, the area, indeed, of a small farm.

The inductive surface of the conductor of the Atlantic (1865) cable is about 481,000 square feet, or 11 acres of area. The exterior inductive surface of the gutta-percha is 1,526,845 square feet, or 35 acres.

The conductor of this cable contains 263 tons of copper, drawn into 13,250 nautical miles of No. 18 wire, a length which, laid over the surface, would more than suffice to join the north and south poles of the earth.

The insulation contains 338 tons of gutta-percha and compound.

A No. 16 copper wire, of the same resistance as a mile of the insulator of the (1865) Atlantic cable, would be over 8,000 millions of miles long, that is to say, long enough to be laid round the orbit of the planet Neptune.—Engineering.

LONDON "TIMES" IN PARIS DURING THE SIEGE.—The Times itself explains how this was managed:—"Those pages of the paper which contained communications to relatives in Paris were photographed with great care by the London Stereoscopic and Photographic Company on pieces of thin and almost transparent paper, about an inch and a half in length by an inch in width. On these impressions there could be seen by the naked eye only two legible words, 'The Times,' and six narrow brown bands representing the six columns of printed matter forming a page of the newspaper. Under the microscope, however, the brown spaces become legible, and every line of the newspaper was found to have been distinctly copied, and with the greatest clearness. The photographs were sent to Bordeaux for transmission thence by carrier pigeon to Paris. When received there, they were magnified, by the aid of the magic lantern, to a large size, and thrown upon a screen. A staff of clerks immediately transcribed the messages, and sent them off to the places indicated by the advertisers."

REPORTED SALE OF NEW MEXICAN MINES.—Asbury Harpending, one of the chief owners of the silver ledges in the vicinity of Ralston, New Mexico, has been absent from this city for about four months, endeavoring to sell the mines abroad. He failed in his efforts in New York; and afterwards went to London, where it is said he has made a conditional sale of all the chief ledges for \$1,750,000. Experts are to be sent out, who will report to their principals. Their report will show, either that the marvelous stories told about the mineral richness of the Buro-Buro district where stock sensations, gotten up with the object of attracting investment, or that they were actually based on facts. If Mr. Harpending succeeds in making the sale, it is understood that the money will be used in his pet scheme, the building up and further extension of Montgomery street South.—Bulletin.

THE LARGEST LIBRARY IN THE WORLD is the British Museum, which already contains 1,600,000 volumes, and is increasing more rapidly than any other library in the world.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, Feb. 25th: The vein in the Chicago tunnel is said to be looking better than ever; and that in the main Globe is more flattering... The Main lower tunnel of the Schenectady is being run ahead, and some good ore is found... A plan for the alterations in the M. & N. W. Mill, including Whelpley & Storer furnace and amalgamators, has been drawn by L. Lewis.

THE SNOW.—*Chronicle*, 25th: Thus far we have three times as much snow as we had all last winter. So our streams are sure to run full banks next summer.

CALAVERAS COUNTY.

QUARTZ.—*Chronicle*, March 4th: Owing to the bad weather of last week, Clark's new mill at Railroad Flat did not commence operations as was anticipated. The battery will be in readiness for crushing the coming week.

INYO COUNTY.

DEEP SPRING.—*Cor. of Independent*, Feb. 25th: We shall have the new furnace ready to fire up in 15 days. On Cottonwood creek, five miles north of Wyman is the Cyclops, located by Mr. Broder and others as early as 1863. It is a valuable mine, its metal being principally gold. Preparations are being made to extract five tons per day. Some of the ore is decomposed, and the gold can be seen in large quantities through the rock. The Leavenworth, one mile west, is two feet thick, and uniform in value. It is antimonial silver ore, with 10 per cent. of gold, and is easily reduced. Further up is the Black Hawk. This ledge is not so large, but is well defined with good walls, and contains very rich antimonial ore, assaying \$1,000 per ton. Twin Pine, owned by Davis & Millington, have ten or twelve tons of fine ore on the dump, awaiting reduction. This is a good ledge.

The Los Angeles News, of Feb. 25th says: A lot of heavy machinery, destined for the Eclipse Mine, at Independence, Inyo county, is now at the railroad depot awaiting transportation by teams to the mines.

KERN COUNTY.

WHITE RIVER.—*Courier*, Feb. 25th: A. J. Maltby is developing his mines, the Eclipse and Robert E. Lee. We learn that thirty tons of rock from the Lee, recently worked, paid at the rate of seventy-four dollars per ton. This rock can be taken out at little expense, as there are quantities in sight, and easily accessible.

LONG LOM.—Burdett & Tucker are working a very large lead with satisfactory results. The Henning & Lightner mines have been leased, and an arastra to work the rock approaches completion. The prospecting is going on briskly.

PLACER COUNTY.

THE DILLON LEDGE.—*Stars and Stripes*, March 2d: In our last we described a large and rich specimen of gold-bearing quartz from Rock Creek. Mr. Dillon, the owner of the claim, has within the past week disposed of one-half to J. Cowan and P. Hines, two experienced miners. A three foot ledge of exceedingly rich rock has been developed, and the company will proceed to active operations on an extensive scale. Rich pay has been struck on an eastern extension of the same ledge by Mr. Lowry—the "Green Emigrant"—and on a western extension P. A. Bell has had equally good luck.

The Herald of the 4th says that other parties have found good prospects on extensions of this ledge within the past few days.

Yule's gravel claims near Last Chance have been incorporated under the name of the Viola Co. Cap. stock, \$1,000,000.

NEVADA COUNTY.

THE PROSPECT.—*Transcript*, March 3d: Companies are getting water, and the melting snow will soon give a supply for the county. If during the remainder of the season the usual quantity of rain falls, the mining will extend far into the summer.

STARTED UP.—The Cement Hill Gravel Co. commenced washing on Wednesday. These claims are now opened for the first time for hydraulic mining. They were worked years ago and paid well for drifting.

We understand that work is to be renewed by Sprecker & Holbrook on the Fidelity ledge, above Washington.

ROUCH & READY.—*Cor. of same*, 4th: John Landis and James Black, owners of

the Goshen Hill claims, have just completed a sluice tunnel 1,100 feet long, after thirteen months steady work, and have an excellent three foot flume through the tunnel, 1,200 feet long. They have 5,000 feet of eleven inch hydraulic pipe with a fall of 200 feet, leading their water to a Craig's patent monitor nozzle. They will commence washing on Monday. The expense of fitting up these claims has been \$15,000.

SAN JUAN.—Bowen & Davis, on San Juan Hill, are working with a 3-inch patent nozzle, through which the water is forced at a pressure of 150 feet.

STRUCK.—*Gazette*, March 1st: Haywood, Webster & Co., have struck rich gravel on their property between Grass Valley and Rough & Ready. A specimen taken out on Monday, weighing about two pounds, contained \$150 to \$2, coarse flake gold.

WATER.—*Same of 3d*: The main ditch of the South Yuba Canal Co., Bear Valley, is running 2,400 inches of water, 1,800 inches of which goes to Dutch Flat, and 600 to Nevada in the Snow Mountain Ditch. Of this last amount, 420 inches are being used by Stranahan, Rolfe & Co., at Cement Hill.

RICH.—*Grass Valley Union*, March 1st: We were shown yesterday a lump of rich gravel from Webster & Co.'s claims on Randolph Hill. This consisted of washed pebbles and coarse grains of gold held together by cement. The weight was about three pounds. Webster & Co.'s claims are opening out rich. The new shaft, it was thought, bottomed on the regular old channel, but explorations show that the shaft struck a bar of the old stream, and that the real channel is 80 or 90 feet north. In the drift north there are six feet of gravel and in any part of this fine prospects are obtained. The average is 25 cents to the pan. The rich lump came from a place four feet above the bed rock.

BALTIC.—*Same of 4th*: The Baltic Co. have struck good gravel in their claims, two miles west of Grass Valley, on the Squirrel creek side of Randolph Hill. The bed of gravel now being piped off is four feet in thickness. The Co. will have water until late in the summer, and probably the whole season.

Same of 5th says a prospect of this gravel in the Baltic gave \$3.50 for two pans of dirt. The Co. is sure of a good thing.

GREENHORN MINE.—Reports are encouraging. The mill is working constantly with good results. The rock pays \$28 per ton, with a ledge of 5 to 7 feet in thickness.

BLUE CEMENT ON ALTA HILL.—*Same of 7th* says: Yesterday the miners sinking the shaft for Alta Co. No. 3, came across a singular deposit. At a depth of 150 feet the pipe clay gave place to a blue cement, such as is found at Smartsville and Sucker Flat, and this shows well in free gold. Several prospects gave, as an average, twenty-five cents worth of gold to the pan of cement. This cement is three feet in thickness.

PLUMAS COUNTY.

ITEMS.—*Quincy National*, Feb. 18th: Johnny Radley is getting good prospects in the gravel range near Butterfly Valley. He thinks he has struck an extension of the channel in Black Hawk creek... At Argentine, Concklin & Ray have shut down their mill until they can put in a new boiler... Billy Yeates, who has recently made a trip to Eureka Mills, informs us that the rock now taken is very rich, the ore being visible in a large portion of it... Bachelder's mine, near Round Valley shows more rich rock than ever before, and the mill is paying largely. The quartz interest in the neighborhood of Indian Valley is improving steadily.

ITEMS.—*Same of 25th*: We hear it reported that very rich rock has been found in the Kittle ledge, (Jenkins & Kellogg's) at Cherokee... Rumor says that \$60,000 was offered for a quartz claim near Indian Valley, one day last week, and refused... The warm weather of last week started the pipes in several hydraulic claims, but the heavy fall of snow has checked the water... The wind on Tuesday night threw down the high flume belonging to E. H. Metcalf of Gopher Hill. He will have it in running order by the time the water commences to run.

SAN DIEGO COUNTY.

FROM THE MINES.—*Union*, Feb. 23d: We continue to receive good news from the Julian and Banner districts. The mines in the San Felipe Cañon are turning out handsomely. McMechan's Mill is running steadily. A large shipment of bullion left that mill yesterday for Pauly & Sons of this city. This firm forwarded \$1,600 worth of bullion, from the Helvetia mine to San Francisco by the last steamer.

A telegram dated March 2d, says: At Julian City the late storm raged for three

days. The roads are almost entirely destroyed, and in consequence of the impossibility of getting quartz to the mill, mining operations will be suspended until the roads can be repaired.

SIERRA COUNTY.

ITEMS.—*Messenger*, March 4th: We hear that a company in Humburg have struck it rich in gold... At Grizzly, there is eight feet of snow; enough for the season's mining... It is rumored that the Ned Leonard Quartz ledge and Mill has been sold.

HOWLAND FLAT.—*Cor. of same*: Three feet of snow fell during the week, making eight feet now on the ground, which with the usual March storm, will insure a fair season.

SISKIYOU COUNTY.

ITEMS.—*Yreka Union*, March 1st: The quartz mill recently erected on Jackass Gulch, Salmou River, is not doing as well as was anticipated... Lawton & Skinner of the Siskiyou Iron Works are making the castings for a quartz mill to be erected on Greenhorn by Abbott, Sullivan & Co... There is no water for hydraulicing at Oro Fino yet. There will be an abundance, however, as soon as the weather becomes warm enough to melt the snow in the mountains... No water in the Big Ditch yet. It is all absorbed before it gets half way down... The storms of last week will do the miners good, but they were not severe enough to secure a good mining season.

TRINITY COUNTY.

CLEAR CREEK.—*Cor. of Journal*, March 4th: Parties report the good prospects as still holding out and plenty of ground for others. It is hard getting in there now on account of the snow. A German started three weeks since to go over there, but getting lost was obliged to lie out in the rain; the next day he stumbled upon a quartz ledge on the head of Hay Gulch and came back to town for provisions, intending to return and prospect it. The specimens that he showed contained gold visible to the naked eye... Peter Lund came in the other day with near \$80 in coarse gold that he had taken out with a pan alone from some diggings on one of the tributaries of the East Fork.

TUOLUMNE COUNTY.

CONDIT CLAIM.—Mining is going on at Condit's old store. Every day pieces of quartz are found that are very rich in gold. The store was built on ground that had not been mined; it is proving so rich now that we fear a mining hole will soon take the place of the building. Pieces containing from one to three hundred dollars each have been taken out within a week. So says the Sonora Democrat.

Nevada.

COPE DISTRICT.

The Elko Independent of March 4th says: More activity is apparent than for months. Argenta is yielding fine pay ore, and the company pay their debts promptly. A new ledge called the El Dorado, owned by Wilson, Hay and others, is yielding magnificent ore, and employs a large number of men. The California mine is worked by Duncan and others successfully. The Idaho ledge is being worked continuously. The Norton mill, always at work, gives great satisfaction. New machinery is on the way to Vance's mill.

ELY DISTRICT.

BULLION.—*Record*, Feb. 26th: The shipments for the week ending February 21st, amount to \$34,963.66; also 15 bars of base bullion amounting to \$2,000.

Same of March 2d. A silver bar is on exhibition at Pony saloon, extracted from 4 tons of ore, valued at \$17.06 gold, and \$565.18 silver. This ore is from the newly discovered district near Highland. The claim is owned by Billy Mitchell, Pearman and others.

EUREKA DISTRICT.

ROSLIN.—*Sentinel*, March 4th: This furnace has been turning out an amount of bullion that has astonished even the owners. For some time past the principal ore worked has been the Bullwhacker. The ore in this mine can be literally quarried out, and, in addition to the contract to furnish 4,000 tons to the Roslin West, and a large quantity to the Roslin furnace, Murphy & Foreman are making arrangements to build a furnace.

BUTTERCUP.—The furnaces were started up several days ago, and have turned out large quantities of bullion of high grade. A new chamber has been struck in the Jackson mine of very rich ore, and much larger than any before.

Ogden, Dume & Co. have consolidated with Messrs. Adams, McCoy and others, under the name of Richmond Mining Co., with a capital of \$250,000. They will begin to turn out bullion in two weeks.

ITEMS.—The Jones mine has 30 or 40 tons ore on dump that will mill \$200... The Hodgdon mine improves... So does the Adams & Farren... A 20-stamp mill will be running July 1st on the Geddes & Bertraud mines... The Home Ticket never looked so well... The Stockton has a large amount of ore exposed... The X Y Z has become the property of the South Eureka Co. and is getting out fine ore in large quantity. It has been incorporated at \$2,500,000 and the superintendent informs us that by selling the ores the stockholders can realize two per cent., per month on the capital; while it is the intention to put up furnaces as soon as spring opens.

ESMERALDA.

A telegram of March 14th says: Parties from the south give good reports of mining prospects in Pine Grove and other districts in Esmeralda county.

HUMBOLDT.

RYE PATCH.—*Cor. Register*, March 4th: Rocky mine shaft is down 40 feet, and shows a two-foot ledge of fine ore... The Butte mine has an incline down 150 feet, and a drift in 225 feet... The Alpha will start up in a few weeks... Akin furnace turns out bullion 994 fine.

GOLD RUN.—L. D. Webb, owner of the Second South Extension of the old Golconda mine, says that his ledge shows a splendid body of rock, from which an assay was made a few days ago, amounting to \$971 per ton. He has on the dump 300 tons. He also states that Lovejoy is developing the First South, and Cusie the First North extensions of the old Golconda, and both mines look well.

BULLION.—*Silver State*, March 4th: The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last, was \$653 pounds, valued at \$6,726.08.

ECLIPSE MINE.—The company hope to reach the ledge early in April, intending to put on another shift, in order to run day and night. While running the incline, ore was taken out that worked at the Auburn Mill, in Reno, as high as \$1,300 per ton. The ledge averages in width about 4 feet. The mine is owned by four persons—all residents of Unionville.

REESE RIVER.

BULLION.—*Reneille*, March 2d: Amount shipped by the Manhattan Co., of this city, through Wells, Fargo & Co., during the month of February, was 88 bars of the value of \$88,781.42; total amount shipped from this city during February, 118 bars of bullion, weighing 10,026 pounds, and of the aggregate value of \$101,801.61. Thirty-four of the bars were the product of Caulfields mill, at Belmont, ten from Montezuma, and the balance Manhattan mill.

WASHOE.

CHOLLAR-POTOSI.—*Enterprise*, March 5: This mine is looking exceedingly well in every part. The amount of ore extracted during the week was 1,700 tons, of which 1,422 tons were forwarded to the mills. The average assay value has been \$65.22 per ton, making the yield for the week \$97,436. One bar shipped yesterday weighed 1,600 ounces and was worth \$9,091.81 or \$5.60 per ounce.

DANEX.—The drift from the main shaft is in 99½ feet. The rock is hard and the drift very wet, the amount of water lifted by the pumps being about 300 gallons per minute. The drift is rapidly draining the old mine.

SUTRO TUNNEL.—The tunnel is in 1,844 feet. It is very wet, as they struck a stream of 20 inches of water during the past week. The rock is hard but full of seams.

OPHIR.—Work is progressing favorably in the "uprise" from the south drift, but ore has not yet been found. Hoisting timbers by hand up the rise makes it slow work, but the up-rise is being pushed as rapidly as possible.

VIRGINIA CONSOLIDATED.—The branch drift to the northwest from the main west drift is being pushed ahead as fast as possible. The ground in which it is being run is still a mixture of quartz and porphyry. A great deal of water is coming in. It is necessary to timber all the time.

CALEDONIA.—The Co. are taking out 50 tons per day. The Sapphire mill started up night before last on ore from this mine. This week the Piute mill will also start up. The quantity of ore extracted will soon be nearly doubled.

BUCKEYE.—Louis Janin has been appointed Supt. in place of H. K. Boyd, resigned. The work done has heretofore been merely of a prospecting nature. During the present month hoisting works will be erected, pumps put in and the mine opened in a scientific manner, when they will be able to extract 30 to 40 tons of ore per day. The ores are now worked at the Franklin mill and at custom mills.

SIERRA NEVADA.—Mine and mills run-

ning as usual. The ore in the Sacramento and Meredith portion of the mine has much improved.

SAVAOE.—This mine is yielding as usual and the ore breasts are looking well. A good deal of prospecting is going on.

HALE AND NORCROSS.—The usual shipments of ore are made, and the ore breasts are looking well.

IMPERIAL.—The sinking of the main shaft is continued and good progress is made.

YELLOW JACKET.—The Yellow Jacket has declared a dividend of \$2 per share and carries over a large surplus. The mine is looking well.

CROWN POINT.—There has been great improvement in the new ore body on the 1,100-foot level this week, and the mine is now the center of attraction on the Comstock.

WHITE PINE.

REVIEW.—*News*, March 4th: A heavier force of workmen has been placed in the Original Hidden Treasure, which has been for a few weeks in a dormant state. The other mines on the Hill have been worked throughout the week with uniformly good results. As regards our base metal interests, they do not look as favorable. But very few claims are now being worked. Our smelting works are idle. The new Rothschild works, which it was expected would have been in operation some time before this, still remain idle. The furnace connected with the Big Smoky mill has all it can do.

WEEKLY SHIPMENT.—Wells, Fargo & Co. shipped, during the last week, from this city, 15 bars bullion, valued at \$19,471.43—produced by mills in this district.

MILLS AND FURNACES.—Big Smoky mill has been working over from Pioche and from the Page & Corwin mine at Secret Cofion, together with ores from the Posthole and other mines on Treasure Hill. The Page & Corwin ore worked about \$500 per ton, and we understand the ore was worked within 9 per cent. of the sample assay. Metropolitan running as usual with a good supply of ore on hand. Swansea will be ready to run as a dry crusher, probably in the early part of the week. Stanford has not yet completed repairs. Oasis, we understand, has shut down, but the report needs confirmation. Jackson furnace, shut down the early part of the week for necessary repairs.

PATENTS GRANTED.—United States patents have been granted to the Aurora Consolidated Co. upon the Aurora and Iceberg lodes; also to the Eberhardt Mill and Mining Co. on the Eberhardt lode.

ITEMS.—Work in North Aurora resumed with small force to keep the mill running. Silver Wave produces 10 tons ore daily. Mammoth has a large body high grade ore in sight, assays \$120 to the ton. Eclipse Consolidated is now going through good ore. An old dump on the Virginia has been removed and disclosed very rich croppings.

Arizona.

BRADSHAW.—Prescott *Miner*, Feb. 18th: The excitement is still intense. Mr. Riggs, an old Nevada miner, and for years underground foreman of the Savage mine, says the ore of the Tiger lode is far richer than any ever taken out of the Comstock.

MORE.—Same of 25th says: The facts are that the Tiger lode crops out of the ground, and is located in claims of 200 feet each, for over three miles; that the width of the ledge is from four to thirty feet; that the ore assays from \$800 to \$6,000 per ton in silver; that native silver is to be seen all through the rock; that, before a hole five feet in depth had been sunk into it, as high as \$25 per foot was offered and refused for it. Its sister ledges—the Tigress, Lion, Hunter, Del Pasco, Espinosa, etc., are nearly, if not quite, as rich. Assayers agree with Mr. Riggs in his opinion of the Tiger's richness.

BIG BUG.—Mr. Gray, of the Big Bug Co., came to town last week "laughing all over," having just made the largest clean-up of gold dust ever made at his mill.

WALKER.—Messrs. Shelton, Pointer, and other miners are taking out ore, and arranging it. Shelton has gold ore that will go \$1,000 to the ton, and says he would not sell his ledge—the Vernon—for \$100,000. Mr. Pointer is just about as independent.

HASSAYAMPA.—The "Davis" lode is, at present, the sensation. It is a large, well-defined vein, and pays \$100 per ton in gold.

PLACER MINING.—Anderson & Pardee took out of their claim on the Hassayampa, week before last, \$145. At Bradshaw, two men, with a rocker, took out \$65 in one day.

The laws of Pine Grove District (includ-

ing the Bradshaw mountains) provide that no work is required to hold claims, "until the cessation of Indian hostilities."

Colorado.

THIRTY THOUSAND DOLLARS TO THE TON.—*Register*, March 1st: In the Caribon mine, in the lower level on the south crevice, 111 feet west of the main shaft, a remarkably rich pocket of ore has been opened. It consists of probably the purest silver glance ever mined in this country, and assays enormously. An average specimen assayed \$28,056.70 per ton, while the purest assays \$32,764.20, in coin. Such a rich body of ore can only exist in a pocket, but at present it shows nearly eighteen inches in width. Its length and depth are not yet ascertained.

ITEMS.—A single cord of Seuderbug ore, run in Kimber's stamp mill, yielded 28 ozs. and 13 dwts., of which the currency value is \$525. The Gunnell Co.'s property has been leased, and operations will be commenced in a few days.

THE GOLD SHIPMENT.—The amount of gold sent East by the three banks of Central for this week will reach \$24,000—a remarkable product for the third week of the month, which is always a dull one for the gold trade.

Idaho.

ITEMS.—*Avantache*, Feb. 25th: Wells, Fargo & Co. shipped this week 14 bars of bullion, valued at \$38,720.76. Ben. Cook & Co. are at work on the third extension south of the Oro Fino.

THE COMING SEASON.—*Statesman*, Feb. 25th: From all quarters the indications are cheering. In Boise county the drawback, want of water, still exists. But measures have been taken to make every drop available, so that the yield will not fall off from last year. The camps to the north begin to look up, ditches have been dug and preparations made. Hydranlics will be running in Deadwood, Stanley, on Salmon river, and in Lemhi county. In the Lemhi Basin, it is now known that there are thousands of acres which will pay by the hydranlic process. Within the past season, there has been an important discovery made hard by to Leesburg in Moose creek. The depth of the ground makes the opening of claims a matter of time and labor. But in the three or four places where they are open, they are found to be ounce diggings. As to quartz, we have no hesitation in asserting that the yield will be a large increase. Quartz development has received a new impetus in Owyhee, in Boise, in Alturas, and in almost every county in the territory. In addition, our advices are that there is a greater abundance of snow in the mountains than for several seasons before.

SNAKE RIVER.—It is reported that good diggings have been discovered higher up the river than those heretofore worked. In these latter, Capt. Bledsoe is at work with derricks, clearing away the large rocks. He thus avoids the necessity of blasting. The gold is mostly found under these rocks. So Mr. T. Newell writes the *Democrat*.

ROCKY BAR.—The *Democrat* of Feb. 25th gives an extract from a private letter: Snow on the level is four feet in depth, while between here and Atlanta it is eight to twelve feet. All placer miners are making preparations to go to work early and quartz men are taking out the best of rock. Everything indicates that there will be more money taken out of quartz through the arastras than at any time since the summer of 1864.

New Mexico.

The San Diego *Union* of Feb. 23d, has a Ralston letter from which we clip: "News has been received, that an English company has purchased property to the amount of \$1,000,000, and that very soon work will commence on a large scale on nearly all the main ledges. Already shafts are being sunk on two of the New Mexican Mining Co.'s claims—the Jackson and Potosi—and, at a depth of twenty feet the quartz is found much improved in appearance. Many new ledges have been discovered this winter, some of which are ten feet wide."

Utah.

The Colorado *Register* for March 1st says: "The reported sale of the Emma mine, in Utah, has fallen through, owing to the fact that James E. Lyon has set up an adverse title. He claims that he owned the mine and struck pay there years ago; and that the parties who recently negotiated the reported sale were the ones whom he had employed to work on it."

An Ogden telegram of March 2d says there is excitement over the discovery of rich surface gold diggings one mile from the Ogden depot. The claims are being rapidly taken up.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., March 9.

After the unusual activity during the week previous, the mining share market experienced a reaction last Friday, with a quite general fall in the prices of most descriptions. This was followed by more activity and an upward tendency, but this lasted only momentarily, the market being weaker thereafter. Amador has been quoted twice at \$340 and \$335. Mammoth reached its highest point of \$1 on the 4th inst. Meadow Valley has suffered a very considerable decline.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Price, Mar. 2. Highest. Lowest. Mar. 9. Adv. Dec.				
Alpha.....	29	9	5	6
Belcher.....	34	24	20	24
Chollar-Potosi.....	16	12	74	29
Crown Point.....	72	79	73	75
Eureka Cons.....	12	14	12	12
Golden Chariot.....	13	79	73	75
Gould and Curry.....	47	47	41	41
Hale and Norcross.....	85	90	80	80
Ida Elmore.....	8	9	8	9
Imperial.....	10	21	10	15
Meadow Valley.....	21	11	46	51
Obir.....	7	9	7	8
Orig. Hid. Treas.....	3	6	3	2
Overman.....	4	4	3	3
Savage.....	34	42	34	41
Sierra Nevada.....	12	12	12	12
Yellow Jacket.....	44	45	42	48

Latest Prices.

(S. F. Stock and Exchange Board.)				
Alpha Cons.....	5 1/2	6	Ida Elmore.....	15
Amador.....	27 1/2	30	Imperial.....	16
Belcher.....	24 1/2	26	Kentuck.....	21
Chollar-Potosi.....	72	79	Occidental.....	16 1/2
Crown Point.....	72	79	Obir.....	7 1/2
Eureka Cons.....	12	14	Orig. Hid. Treas.....	3 1/2
Golden Chariot.....	13	79	Overman.....	4 1/2
Gould and Curry.....	47	47	Savage.....	41
Hale and Norcross.....	85	90	Sierra Nevada.....	12
Ida Elmore.....	8	9	Yellow Jacket.....	45

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DATE
Alpha Cons., G. H. Mar. 1, \$1.....	April 5—April 24	
Belcher, G. H., Feb. 16, \$1.....	Mar. 22—April 10	
Cerberus Flat Blue Gravel, Feb. 4, \$5.....	Mar. 10—Mar. 28	
Confidence, G. H. Feb. 6, \$3.....	Mar. 13—Mar. 28	
Cons. Virginia, Feb. 27, \$1.....	April 3—April 25	
Delta, G. H., Feb. 1, \$1.....	Mar. 13—Apr. 10	
El Rio, Santa Cruz Co., Feb. 8, \$50.....	Apr. 4—Apr. 10	
Gould & Curry, Va City, Feb. 23, \$12.50.....	Mar. 30.....	
Imperial, G. H., Feb. 1 \$10.....	Mar. 7—Mar. 24	
Kentuck, G. H., Jan. 17, \$17, \$10.....	Feb. 20—Mar. 10	
Mammoth, W. P., Jan. 31, 10c.....	Mar. 10—Mar. 31	
Marble Falls, Nye Co., Nev., Feb. 6, 25c.....	Mar. 9—Mar. 27	
Mountain City, Nev., Feb. 18, 25c.....	Mar. 27—April 17	
Nevada Consolidated, S. Bar. Co., Feb. 13, 25c.....	Feb. 20—Mar. 13	
Nevada Butte, H. D. Co., Jan. 18, 55c.....	Mar. 21—Apr. 17	
Neovada, Nevada, Jan. 19, 20c.....	Feb. 23—Mar. 17	
North American Co. M. Ch. Feb. 15, 5c.....	Mar. 23—Apr. 27	
Orig. Hid. Treas., W. P., Jan. 31, \$1.....	Mar. 3—Mar. 27	
Ophir, Placer Co., Dec. 13, 40c.....	Feb. 5—Feb. 27	
Overman, G. H., Feb. 28, \$2.50.....	April 8—April 28	
Placer, Placer Co., Jan. 4, \$5.50.....	Feb. 15—Mar. 11	
Rogers, Nevada, Nov. 13, \$1.25.....	Mar. 20—Apr. 17	
Taylor, El Dorado Co., Jan. 31, 50c.....	Mar. 6—Mar. 27	
Union, Sierra Co., \$1.....	April 6—.....	

MEETINGS TO BE HELD.

Globe.....	Special Meeting March 13
San Francisco.....	Annual Meeting, March 21
Silver Sprout.....	Special Meeting March 20
Virginia.....	Annual Meeting, March 14

LATEST DIVIDENDS—(Within Three Months).	
Black Diamond, 1/2 per cent.....	Payable Mar. 6
Chollar-Potosi, \$5.....	Payable March 9
Chollar Potosi, \$5.....	Payable March 15
Eureka, div., \$2.....	Payable Feb. 7
Eureka Cons., \$1.....	Payable, Feb. 20
Golden Chariot, div., \$7.....	Payable March 10
Hale & Norcross, div., \$5.....	Payable March 10
Meadow Valley, div., \$5.....	Payable Feb. 9
Natoma, div., 1 per cent.....	Payable March 6
North Star, \$3.....	Payable March 10
Sierra Nevada, div., \$1.....	Payable Jan. 16
Yellow Jacket, \$2.....	Payable March 10

*Advertised in this journal.

New York Metal Market.

[COMPILED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Feb. 25, 1871.

IRON.	
Pig, Scotch, No. 1 (cash), per ton.....	\$30 00 @ \$34 00
Pig, American, No. 1 (cash).....	30 00 @ —
Pig, American, No. 2.....	26 00 @ 28 00
Swedish, ordinary sizes.....	11 00 @ 12 00
Common.....	72 00 @ 77 50
Refined.....	75 00 @ 80 00
Rods.....	82 00 @ 117 00
Horse-shoe.....	95 00 @ —
Hoop.....	100 00 @ 140 00
Scroll.....	97 50 @ 130 00
Nail-rods, per lb.....	7 1/2 @ —
Spring.....	7 1/2 @ —
Tire.....	7 1/2 @ 8

STEEL.	
Bars, best cast, warranted, per lb.....	18 @ — 19 1/2
Sheet, best cast.....	18 @ —
Sheet, second quality.....	15 1/2 @ —
Sheet, third quality.....	13 1/2 @ —
Saw-plates, circular.....	23 @ —
Double-shear, warranted.....	18 @ —
Single-shear.....	9 @ —
Machine & Co. (cast bars).....	15 1/2 @ —
Machinery, round.....	12 @ —
German, best.....	11 @ —
German, goat.....	10 @ —
German, eagle.....	9 @ —
Blister, warranted.....	14 1/2 @ —
Blister, common.....	17 @ —
Jessop & Sons', common.....	17 @ —
Double-refined.....	26 1/2 @ —
Stone-axes.....	26 1/2 @ —

SUNDRIES.	
American Lead, per 100 lbs.....	7 50 @ 8 00
German.....	7 50 @ 8 00
Ber.....	8 50 @ 9 00
Pipe and Sheet.....	8 50 @ 9 00
Assumman and Amer. Zinc, per lb.....	9 @ — 9 1/2
Antimony.....	16 @ — 17
Spelter.....	7 @ — 7 1/2
Copper old.....	17 @ —

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations

FRIDAY, March 10, 1871	
IRON.—Duty: Pig, \$7 per ton; Railroad, 6 1/2 @ 100 lbs; Bar, 1 1/2 @ 100 lbs; Sheet, polished, 2 1/2 @ 100 lbs; common, 1 1/2 @ 100 lbs; Plate, 1 1/2 @ 100 lbs; Pipe, 1 1/2 @ 100 lbs; Galvanized, 2 1/2 @ 100 lbs; Scotch and English Pig Iron, \$34 00 @ \$35 00	
White Pig, \$30 per ton.....	32 @ 33 00
Refined Bar, had assortment, \$30.....	31 @ 32 00
Refined Bar, good assortment, \$30.....	31 @ 32 00
Boiler, No. 1 to 4.....	31 @ 32 00
Plate, No. 10 to 13.....	31 @ 32 00
Sheet, No. 10 to 13.....	31 @ 32 00
Sheet, No. 14 to 20.....	31 @ 32 00
Sheet, No. 21 to 27.....	31 @ 32 00

COPPER.—Duty: Sheathing, 3 1/2 @ 100 lbs; Pig and Bar, 2 1/2 @ 100 lbs	
Sheathing, \$30.....	20 @ 25
Sheathing, Yellow.....	20 @ 25
Sheathing, Old Yellow.....	20 @ 25
Composition Nails.....	21 @ 22
Composition Bolts.....	21 @ 22
TIN PLATE.—Duty: Sheet, 1 1/2 @ 100 lbs; Plate, Charcoal, IX @ box.....	12 00 @ —
Plates, 1 1/2 Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs.....	10 00 @ 10 50
STEEL.—English Cast Steel, \$30.....	15 @ —
QUICKSILVER.....	10 @ —
Do. Grease.....	10 @ —
Sheet.....	10 @ —
Pipe.....	10 @ —
Sheet.....	10 @ —
ZINC.—Sheet, \$30.....	10 @ —
BOLAX.....	23 @ 25

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, March 10, 1871.	
Sugar, crushed, \$10.....	14 1/2 @ 15
Do. Hawaiian.....	15 @ 16
Coffee, Costa Rica, \$10.....	9 @ 12
Do. Rio.....	18 @ 20
Tea, Japan, \$10.....	50 @ 50
Do. Oolong.....	50 @ 50
Hawaiian Rice, \$10.....	50 @ 1 00
China Rice, \$10.....	50 @ 7 1/2
Coal Oil, \$10.....	50 @ 50
Overland Butter.....	18 @ 18
Ranch Butter.....	35 @ 40
Butter, California.....	25 @ 25
Eggs, \$10.....	25 @ 25
Chickens, \$10.....	25 @ 25
Lard, \$10.....	14 @ 15
Bacon and Sausage, \$10.....	14 @ 16
Shoulders, \$10.....	9 @ 10

Retail Prices.	
Sutter, California, fresh, \$10.....	45 @ 50
do. pickled, \$10.....	35 @ 40
do. Oregon, \$10.....	15 @ 20
Cheese, \$10.....	20 @ 25
Five Oat Wood.....	25 @ 30
Eggs, \$10.....	40 @ 50
Lard, \$10.....	18 @ 25
Bacon and Sausage, \$10.....	20 @ 25
Granular, \$10.....	15 @ 20
Potatoes, \$10.....	2 @ 3
Potatoes, Sweet, \$10.....	1 @ 2
Onions, \$10.....	2 @ 3
Apples, No. 1, \$10.....	4 @ 6
Pears, Table, \$10.....	5 @ 6
Oranges, \$10.....	15 @ 20
Peaches, dried, \$10.....	15 @ 20
Oranges, \$10.....	50 @ 75
Lemons, \$10.....	50 @ 75
Chickens, \$10.....	75 @ 1 00
Turkeys, \$10.....	75 @ 1 00
Calf, Pale and C. O.....	10 @ 15
Soap, Castile, \$10.....	13 @ 20

Produce, Etc.	
Flour, Extra, \$10.....	6 50 @ \$7 00
do. do. \$10.....	5 50 @ 6 00
Corn Meal, \$10.....	2 15 @ 2 25
Wheat, \$100 lbs.....	2 25 @ 2 40
Oats, \$100 lbs.....	1 25 @ 1 75
Barley, \$100 lbs.....	1 30 @ 1 35
Beans, \$100 lbs.....	1 87 1/2 @ 2 50
Potatoes, \$100 lbs.....	1 00 @ 1 75
Hay, \$10.....	10 @ 12 1/2
Straw, \$10.....	10 @ 12 1/2
Ref. calf, dressed, \$10.....	8 @ 12
Sheep, on foot.....	2 00 @ 2 50
Hogs, on foot, \$10.....	6 @ 6 1/2
Hogs, dressed, \$10.....	7 1/2 @ 8

Leather Market Report.

[Corrected weekly by Dilliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, March 9.
SOLE LEATHER.—The demand is still equal to the supply, and prices firm.

City Tanned.....26 @ 30
Santa Cruz.....26 @ 30
Country.....25 @ 28

CALF AND KIP SKINS.—The close of the war has made no difference in the price of French stock as yet, and probably will not. Domestic skins rule the same as heretofore.

Best French Calf Skins, \$100.....	75 00 @ 100 57
Common French Calf Skins, \$100.....	35 00 @ 75 00
French Kips, \$100.....	2 15 @ 1 00
California Kip, \$100.....	60 00 @ 75 00
California Calf, \$100.....	1 00 @ 1 00
Eastern Wheel Stuffed Calf, \$100.....	800 @ 1 25
Eastern Calf for Backs, per lb.....	1 10 @ 1 5

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING FEBRUARY 21st.

MANDREL FOR GAUGING AND CUTTING SOLDER WIRE.—Lewis Cutting, San Francisco, Cal., assignor to himself and Francis Cutting.

PRIVY.—Frank Riedel, San Francisco, Cal.

MOP-HOLDER.—John Brizee, Alvarado, Cal.

SEWING MACHINE FEEDING MECHANISM.—Mary P. Carpenter, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

IMPROVED TRUSS.—A Folleau, S. F.—This form of truss seems to be one calculated to effect good service, allowing of greater or less pressure according to need, and not permitting the parts to protrude through any sudden movement of the person. It consists in the use of a secondary pad within the ordinary pad, so constructed that it may be made to give additional pressure towards the center; and in so constructing the spring in parts, that it will readily yield to the motion of the body in different directions, without for a moment losing its efficiency in keeping the pad in place. The pad is so connected with the spring that its angle or position with reference to the spring can be readily adapted to the different forms of rupture.

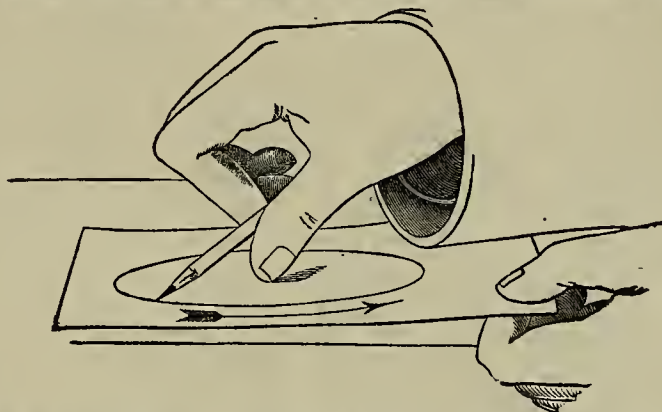
OPERATING CUTTERS FOR STEAM PLOWS. O. Hyde, Oakland, Cal.—These improvements in mounting and operating the cutters of steam plows, refer more particularly to that class of plows in which a number of circular cutters are driven by the same power which propels the machine. The invention consists of a frame of peculiar construction in which are arranged as many sliding blocks as there are cutters. This frame is hinged to the rear end of the machine in such a manner that it can move freely, and it is supported at its rear on rollers or elastic shoes. The cutter shafts pass through the sliding blocks so that the cutters may be operated independently of one another in such a way as to accommodate themselves to the irregularities of the ground.

ELASTIC TIRE FOR TRACTION ENGINES.—O. Hyde, Oakland, Cal.—The ordinary rubber tire used in such machines is very expensive on account of the difficulty experienced in molding and vulcanizing so large a mass of rubber. In order to reduce materially this item of expense, Mr. Hyde proposes to make the tire in sections, and to fasten these sections upon the wheel so as to form a continuous rubber tire. For this purpose he has the metallic tire of the driving wheels cast with T-shaped projections at regular intervals around its entire circumference, these forming ridges which pass entirely across the face of the tire. Blocks or slabs of rubber of any convenient size are used, having a recess, passing across each lower corner from side to side, of a proper form to fit one half of the T-shaped projections, the blocks being slid into place from one end of the tire to the other. The blocks have also passing through them, holes countersunk upon the outer face to accommodate large flat-headed bolts which pass through the metallic tire. The lower ends of these bolts are forked and spread apart so as to form a key which prevents the bolt from coming out, while allowing it to move sufficiently as the rubber blocks are compressed and expanded. In this way a cheap elastic tire may be made, and can be repaired easily when damaged in any portion, without the necessity of throwing away the whole tire, while other advantages over the common tire are obtained.

Drawing a Circle.

There are many simple little ways of doing things without the need of extensive apparatus, which is often useful to know. We cannot always be sure of having the mechanical appliances on hand when we need them, and we may therefore be put to considerable trouble to effect some simple object, when, if we knew it, we could easily do what we wanted by properly using our hands.

The accompanying illustration shows an easy method of drawing a circle without compasses, and one which allows of considerable accuracy. The cut hardly needs a description. The pencil, with point resting on the paper, is held between the thumb and forefinger in the manner indicated. The thumb presses on the paper which is then revolved, with the left hand, in the direction denoted by the arrow. In the beginning a little difficulty may be experienced in getting the pencil to mark an unbroken circle, but with a little practice, this difficulty will disappear and a curve



accurate enough for many purposes can easily be made. Indeed, we are told that, with experience, as perfect a circle can be thus drawn as is done with the aid of compasses.

Why Circles Please the Eye.

Prof. Muller, in a course of lectures in Berlin, offered a simple and mechanical explanation of the universal admiration bestowed on these curves. The eye is moved in its socket by six muscles, of which four are respectively employed to raise, depress, turn to the right and to the left. The other two have an action contrary to one another, and roll the eye on its axis, or from the outside downward, and inside upward. On an object being presented for inspection, the first act is that of circumvision, or going round the boundary lines, so as to bring consecutively every individual portion of the circumference upon the most delicate and, sensitive portion of the retina. Now, if figures bounded by straight lines be presented for inspection, it is obvious that but two of these muscles can be called into action, and it is equally evident that in curves of a circle or ellipse all must alternately be brought into action. The effect then is, that if two only be employed, as in rectilinear figures, those two have an undue share of labor; and by repeating the experiment frequently, as we do in childhood, the notion of tedium is instilled, and we form gradually, a distaste for straight lines, and are led to prefer those curves which supply a more general and equable share to work the muscles.

SAVING RATHER THAN EARNING BRINS WEAITH.—In evidence of this proposition the New Orleans *Picayune* tells the story of a printer who, when his fellow-workmen went out to drink beer, during the working-hours, put in the bank the exact amount which he would have spent if he gone out to drink. He kept to this resolution for five years. He then examined his bank account and found he had on deposit \$521 86. In the five years he had not lost a day from ill-health. Three out of five of his fellow-workmen had, in the meantime, become drunkards, were worthless as workmen, and were discharged. The water-drinker then bought out the printing office, went on enlarging the business, and in twenty years from the time he began to put by his money was worth \$100,000. The story, whether new or old, teaches a lesson which every young mechanic should lay to heart.

Greasing Wagons.

Greasing buggies and wagons is of more importance than some people imagine. Many a wheel is ruined by oiling too plentifully. A well made wheel will endure constant wear for ten to twenty years if care is taken to use the right kind and proper amount of oil; but if this matter is not attended to, the wheel will be used up in five or six years, or may be sooner. Lard should never be used on a wagon; for it will penetrate the hub and work its way out around the tenons of the spokes and spoil the wheel. Castor oil is a good material for use on an iron axle; just oil enough should be applied to a spindle to give it a light coating; this is better than more, for the surplus put on will work out at the ends and be forced by the shoulders and nut into the hub around outside of the boxes. To oil an axletree, first wipe the spindle clean with a cloth wet with turpentine, if it won't wipe without it. On a buggy or carriage, wipe and clean off the back and front ends of the hubs and then apply a very small quantity of castor oil, or some especially prepared lubricator near the shoulders and point.

ANACONDA SKIN LEATHER.—Last summer, so it is said, a Boston establishment

tanned fifty anaconda skins for boot leather. The boots are valued at \$50 a pair. The largest of these skins was forty feet in length. The tanning processes were similar to those observed in the manufacture of alligator leather, the product being a very beautiful and highly finished quality of leather, glossy, mottled, pliable, and from the appearance of grain exceedingly durable.

TOMATO FIGS—HOW TO PREPARE THEM.—Tomatoes cured nearly in the same manner as figs are said to make as good fruit, and scarcely distinguishable from the regular Smyrna fig. The experiment does not cost much, and is certainly worth trying. The tomatoes are taken ripe, scalded, and the skin taken off to allow them to absorb the saccharine principle, and then covered over with fine sugar and laid out to dry. When nearly dry, they are taken and placed in alternate layers with sugar, and when thus cured are said to be as good as any fig.

COAL NEAR MONTEREY.—The San Juan *Echo* says Dr. Matthews, of Monterey county, has discovered a valuable deposit of coal 30 miles southeast of the town of San Juan, in the Coast Range. Samples, it is said, have been tried by a blacksmith, and pronounced of superior quality for use in the forge.

GREATEST AVERAGE YIELD.—Kansas leads all the States in the average yield of corn, it being 42.2, and California 41.4. She also stands third in yield of wheat, barley, potatoes and hay, and seventh in buckwheat.

WILD PIGEONS.—Since the late severe storms wild pigeons have become very numerous in the lower part of El Dorado county. One day last week a flock of several thousand took refuge in the timber near Latrobe, and sportsmen there had a grand time.

OUT OF DATE.—It is said that there is now but one station in all Greenland, in the vicinity of which there are any heathens to be found. In fact nearly all the inhabitants of that country now profess Christianity. We shall soon have to get a new version of the favorite missionary hymn "From Greenland's Icy Mountains."

THE SACRAMENTO BEET SUGAR COMPANY has contracted for the plowing and planting of 450 acres with sugar-beets. Every acre is to be plowed 15 inches deep—no shallow tillage there. The ground is being planted at the rate of ten acres per day.

CARBONATE OF SODA IN WASHING.—The carbonate of soda, so popular with the washerwoman, is quite injurious to the fiber of linen. A French writer says that a much better way is to soak the clothes in a solution of 2 pounds of soap to 25 quarts of warm water, to which are added one tablespoonful of essence of turpentine and 3 spoonfuls of ammonia. The articles should be soaked several hours and the tub covered. The articles are then to be washed in the ordinary way. The ammonia exerts no corrosive action on the fiber, and the odor of turpentine escapes in drying.

POISONOUS SODA.—A matter of some interest in the use of soda has recently been discovered by the well-known scientist, Dr. Fresenius. The Doctor has ascertained that much of the soda that is used for baking, contains arsenic, and he traces its source through a curious history in the manufacture of this drug. Sulphuric acid is largely made use of at alkali works; and this acid in turn is made extensively from pyrites. There are some new works of the kind started in the Highlands on the Hudson where a bed of pyrites has been found. But almost all pyrites contain arsenic which remains as an impurity in the acid; to be passed over into the carbonate of soda, when used for that purpose; and sulphuric acid is used for so many things that are freely consumed by man, the discovery is one of no little importance; and it is to be hoped that manufacturers will take special pains to have the arsenic eliminated.

WHAT EATS FARMERS UP.—The fences of the United States are estimated to have cost more than the houses, cities included; more than the ships, vessels and boats of every description which sail on the ocean, lakes and rivers; more than our manufacturing, with all their machinery, and more than any one class of property, real estate excepted. These are curious facts, but they are facts nevertheless. The fences of New York are put down at \$144,000,000; those of Ohio at \$115,000,000, and Pennsylvania at \$120,000,000. Divided out at this rate, the money invested in fences alone is more than equal to the national debt. As fences require to be renewed, on an average, once in ten years, the annual cost to the country is not far short of \$200,000,000.

A CHEAP WAY OF PUTTING UP ICE.—A resident of Taunton, Mass., has obtained his ice for summer use, for several winters past, in the following manner: Procuring about fifty empty flour barrels, at a cost of twenty cents each, he gradually pours in water until each contains a solid mass of ice. The barrels are then put away in his cellar and entirely covered with sawdust. As ice is required, a barrel is opened.

EMIGRANTS.—A party of English emigrants have purchased 5,000 acres of land near Nashville, Tenn., for \$2 per acre, with five years in which to pay it. The company numbers 1,300 persons in all—farmers and mechanics. With such propositions coming from the older States, California will have to make higher bids than she has yet offered to secure anything like a large immigration.

A SEVEN YEARS' PUMPKIN.—The *Register*, published at Blair, Nebraska, says that Mr. J. M. Filson, of Tehamah, in that State, is raising a kind of pumpkin which will keep sound for seven years. It looks somewhat like a mottled squash; but it is a genuine pumpkin, firm-grained and spicy, and just suited to the lovers of good pumpkin pies.

MOTION CONVERTED INTO HEAT.—When leaden rifle bullets are fired against iron targets, the lead is melted and spattered upon the target in the form of a star. This fact is stated as the result of careful experiments recently made at Basle, in Switzerland.

CASHMERE GOATS IN THE MOUNTAINS.—Moses Allen, of Miners' Ravine, in the lower end of Placer county, has a flock of Cashmere goats. He says it costs no more to raise a goat than a chicken.

A NARROW GAUGE RAILROAD IN TENNESSEE—A railroad thirty inches wide and eleven miles long, is to be built in Greene county, Tennessee, at the cost of \$20,000. The rails are of wood, and to be stripped with iron.

THE NORTHERN PACIFIC.—Jay Cooke expresses the opinion that the Northern Pacific Railroad will be in running order within four years.

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARR before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Water—Extraordinary Properties.

LECT. III. Mar. 4.—I remember hearing many years ago, said the Professor, the composition of a school-boy on Water. "Water," it was said, "is a very useful thing for vessels to sail on, for ducks to swim in; it is very useful to wash with and to cook with; and in some countries it is used to drink." This was many years ago. Now, doubtless, the writer would say, that if it was not used largely to drink, it is found very useful for adulterating drinks.

Water is a very common substance. It covers nearly three-quarters of the surface of the globe. It exists in plants and animals. Three-quarters of our bodies consist of it. It forms much the largest proportion of all organs. It is a most essential material, for many of the elements required to form substances must be brought into the closest contact with one another to combine, and water presents the medium by which this contact can be effected. It exists in the atmosphere, sometimes in very large relative amounts.

Water has some extraordinary properties which we, perhaps, do not always recognize. Thus, it is perfectly tasteless and inodorous. Were it otherwise, it would interfere with the operations carried on in the bodies of all sensitive animals. As it is, it passes all over our bodies, meeting every organ, without producing the slightest irritation. It is a substance which requires more heat than any other known liquid substance to keep it at a certain temperature. Take quicksilver and water, for instance. It takes 30 times as much heat to elevate water through any given number of degrees of temperature, than it does to do this for mercury. About a thousand degrees of heat must enter into water to convert it into steam which has the same temperature as the water. This great capacity of water for heat is the reason why there is nothing so cooling as is this liquid. There are many other properties, of which I have no time to speak now.

Its Composition.

Water is composed of two elements,—oxygen and hydrogen. Of oxygen I have have spoken in a previous lecture. It is a gas, you will remember, which has never been reduced to a liquid form. Hydrogen is another gas, and this forms one-ninth of all water. We can obtain it more readily from this than from anything else, although it occurs in very many other substances, as in the flesh of all animals, in the woody fibre of all plants, starch, sugar, etc., etc. We get it, however, more readily than in any other way from water by adding a substance which will take up the oxygen of the water, when, of course, the hydrogen is set free.

For instance, I have here a piece of potassium. Potassium has a great affinity for oxygen, with which it unites to form potash. So strong is this affinity that potassium will take away the oxygen from water. Thus, I throw this little piece on this water. You see that it bursts into flames, swimming about on the surface. It has seized the oxygen with such force that light and heat are produced, hence the flames. The hydrogen is set free, but so great heat is produced by the union of the potassium and the oxygen, that the hydrogen immediately unites with the oxygen of the air and forms water again.

To obtain the hydrogen, therefore, I must perform this experiment where there is no air present, as under water. I have here a cylindrical vessel which I filled with water and carefully placed in an inverted position in this pan of water. It is still full. I wrap a piece of potassium in paper (that the water may not get at it immediately) and put it in the water under the vessel. It burns as before, the hydrogen rises up in the vessel, pressing down the water. The white fumes are the vapor of potash and are quickly absorbed in the liquid.

You can see nothing in the upper part of the vessel,—only that the water no longer fills it; for hydrogen is colorless and transparent. But oxygen and nitrogen and carbonic acid, as I showed in former lectures, are also colorless and transparent. I remove the vessel, letting the water fall out, keep it still inverted, and insert a lighted taper. The gas burns with a slight explosion. It differs then from oxy-

gen, for it burns itself, while oxygen makes other bodies burn; and from nitrogen and carbonic acid, for these extinguish a flame. In the explosion, hydrogen took oxygen from the air, forming water.

We can obtain the hydrogen from water easily in other ways. In this bottle I have pieces of metallic zinc. I now pour in sulphuric acid and water, about one measure of acid to four of water. The boiling or effervescence is caused by the evolution of the hydrogen gas. The oxygen of the water has united with the zinc, forming zinc oxide, and the sulphuric acid has united with this, forming sulphate of zinc, and the hydrogen is set free.

Properties of Hydrogen.

Hydrogen is lighter than any other known form of matter. It is often used to inflate balloons. I close the bottle with a cork which has a glass tube, open at both ends, passing through it. The hydrogen passes out through the tube. I connect a rubber tube with the glass one and with this clay pipe. Now with these soap-suds I can make soap-bubbles, filled with hydrogen. The bubbles rise up in the air. Blowing soap-bubbles with the breath, they fall to the ground.

I invert this glass jar and place it over the glass tube. It fills with the gas. I insert a lighted candle into it. There is an explosion and the hydrogen burns at the mouth of the jar (where it is in contact with the air), but passing the candle up into the gas, the flame is extinguished. There is no oxygen, no air holding oxygen there, consequently it cannot burn; for hydrogen will not support combustion of itself. Taking out the candle, it is lighted again by the flame at the mouth of the jar. When all the hydrogen is burned, there is seen considerable moisture inside. This is the water formed by the union of hydrogen and oxygen.

The heat of burning hydrogen is very intense, hence the vapor of water, or steam, produced is very hot,—2,000° perhaps. I fill this metallic cylinder, closed at the upper end, with hydrogen, mix air with gas in the proper amount (about 9 parts air to one part hydrogen) to form water, and close the tube tightly with a cork. I bring a light to this aperture, near the top of the tube, which I have hitherto closed with my thumb. There is a heavy explosion and the cork is violently ejected; for the steam was formed and expanded instantaneously with great force.

Thus you see we have in water a substance which, when our coal-beds are exhausted, can be made to supply heat for all time. The only trouble is to find an economical method of getting it out. Undoubtedly some one will in time find such a method.

Impure, Poisonous Water.

Water, as I said, contains oxygen and hydrogen. This is pure water. But all water is not pure, but often has, besides these constituents, more or less foreign substances dissolved in it. Rain, in its fall, takes up many gases which are diffused in the atmosphere. It holds air, and the air we find in water in such circumstances contains about twice as much oxygen as the air we breathe. This is because water dissolves oxygen to a greater extent than it does nitrogen. As every animal needs oxygen in order to live, were this not the case the inhabitants of the water would not be able to exist. If we expel the air from water by boiling, and place a fish in the liquid, it will die. Water also dissolves, out of the atmosphere, carbonic acid and ammonia,—which are required for plants.

Water often contains organic substances which it gets from decaying vegetable matter, which is soluble to some extent. Sometimes it is so impure with them as to be poisonous. When objects decay, a little carbon is gradually taken out and pieced with a little oxygen, and a movement of the particles of the object takes place; and if these are brought into the stomach, or placed in contact in certain cases with the fluids of our bodies through a scratch or wound, this movement, or at least a *something*, is communicated, and our bodies decay,—we are poisoned. [Our readers will find another theory on this subject in the SCIENTIFIC PRESS of Oct. 22 and 29, 1870.—Eds. Press.]

Now we can purify such water in various ways. One is, by boiling, for heat causes the coagulation of the albumen and albuminous substance which is taken up by the water and destroys its poisonous character. Tannic acid, which occurs in various substances and is the material used in tanning leather, has a similar effect. Sometimes the presence of leaves or bark (holding tannic acid) prevents such water from exerting poisonous effects. So we can use alcohol, or even corrosive sublimate, only an excess

of the last will make the water even more poisonous than before.

Hard Water.

Mineral substances occur in water, which is, indeed, the universal solvent, if there is any such thing. Water at different temperatures will dissolve almost any substance. When very hot, it will dissolve quartz, for instance. Moreover, the water gets many things from the atmosphere, as carbonic acid, which increase its solvent power.

The ladies especially know what effect "hard water" has on soap. Hard water is often water holding carbonate of lime in solution. The fatty acids of the soap combine with the lime and form a substance which precipitates, and we get this instead of the lather we commonly desire. I have shown you previously how an excess of carbonic acid in water dissolves to a great extent the generally insoluble carbonate of lime. Now we can get rid of this by boiling, for the excess of carbonic acid is thus expelled and the carbonate of lime is thrown down as a solid substance. The incrustation of boilers, which use hard water, is often carbonate of lime in great part. Water is often made hard by sulphate of lime, also by the corresponding compounds of magnesia.

We can often purify hard water by boiling, as just explained; or by adding lime, or soda, or potash, which combine with the excess of carbonic acid, and thus the various carbonates are precipitated.

Water at 32° Fah., congeals and expands with irresistible force. Hence in the polar regions rocks are ground up and carried off. The mechanical action of running water need only be mentioned here.

Thus you see water is a most powerful and a most important agent. It exists in our bodies where it is necessary, in order that the various operations requisite for existence may be carried on. It purifies the air and brings down food for plants. It dissolves substances and carries them off to feed animals. I have by no means told you all of the properties of water, or of all which it does; but if I have induced any one to pay more attention to the common things of life, my lecture has not wholly failed of its object.

GOOD HEALTH.

Neuralgia.

[Written for the PRESS.]

Neuralgia, from the Greek words *neuron*, (nerve) and *algos* (pain), is, as its name indicates, a condition of disease, in which pain of a sharp, darting, lancinating character is felt along the course of a nerve.

Neuralgia is confined entirely to sensory nerve tissue. In pure neuralgia, there is neither tenderness upon pressure, inflammation, discoloration of the skin over the painful spot, nor swelling. But on the contrary, there is a feeling of coldness, and a desire to apply pressure which often affords partial relief. Whenever there is heat, swelling or tenderness upon pressure over the painful nerve, the neuralgia is either associated with gout or rheumatism; or else, the pain has induced a secondary inflammatory action.

Any sensory nerve may be involved; yet, the branches of the fifth pair, which spread over the sides of the head and face, are the ones most commonly affected. Any part of the body which is traversed by sensory nerves may be the seat of neuralgic pain; consequently various names are applied to it, to indicate its local character.

Neuralgia of the head is called *nerveous headache*; of the face, *tic doloureux*; of the stomach, *gastrodynia*; of the heart, *angina pectoris*; of the back part of the thigh, *sciatica*; and of the feet *neuralgia pedis*, etc.

Since neuralgia became a fashionable disease, almost every painful affection has been called neuralgia. This is erroneous; for although it is through the nerves that pain is felt; pain from inflammation or lesion, (local injury); is notice to the brain, through the medium of the nerves, of disturbance at their extremities—the nerves simply carry the news—while in neuralgia, the nerves themselves are affected, either directly or reflexively, through the nerve centres.

In inflammation or local injury, pain is felt at the point where the cause exists; while in neuralgia the cause lies either between the painful spot and the brain, or is reflected through the nerve centers to some

nerve distant from the real affection. For example:—If a nerve is pressed or irritated, at the point of its exit from, or passage through a bony structure, pain is felt along the whole course of the nerve to its peripheral extremity; but not especially at the point of irritation.

Again:—*Nervous headache* is almost uniformly the offspring of gastric irritation or *dyspepsia*, reflected through the nerve centers, while *gastrodynia*, and *angina pectoris* frequently have their origin in irritation of the spinal cord or its surrounding meninges, or is reflected from some distant point. *Tic doloureux* (neuralgia of the face) may be caused by gastric irritation or a decayed tooth; or it may have a rheumatic or miasmatic origin.

Sciatica is frequently the offspring of rheumatism, and is sometimes so intimately connected with it, that it has been called "*sciatic rheumatism*."

Neuralgia pedis, too, is often associated with rheumatism and gout, and the pain from each is very frequently so severe, that it is difficult to determine which affection causes the suffering.

Syphilitic, syctic, scorbutic, and numerous other "blood poisons," also, very frequently, either directly or indirectly, produce irritation of the nerves and neuralgic pain. While all neuralgic pains are caused by nervous irritation, either direct between the painful spot and the brain, or are reflected back from the affected nerve through the spinal cord, and again down the painful nerve, there are many other pains, which, although not strictly neuralgic, are reflex in their operation. Consequently pain through the right shoulder attends inflammation of the right lobe of the liver; pain through the left shoulder, inflammation of the spleen or left lobe of the liver; pain in the side, in the back "low down" and through the temples and eyes, diminished or suppressed menstruation; and pain in the knee is always felt in *cacarrus morbus* or "hip disease," while the pain in the hip is either entirely wanting, or is so slight that it is scarcely noticeable.

Reflex nervous action is certainly one of the most interesting subjects for study to the physiologist and pathologist; and if it was better understood, there would certainly be no blistering, leeching and cupping, over the painful nerves, in any purely neuralgic affection.

As neuralgia is not an *idiopathic* or *primary* disease; but simply a secondary or *sympathetic affection*—not a disease; but only a *symptom of disease*—it is evident that the only way to cure it, is to remove the cause; when, as a consequence, the painful symptom ceases.

Every experienced physician knows, that neuralgia often assumes a periodical type, when the paroxysm of pain corresponds to a chill in intermittent fever. In fact, the chill is often changed to a neuralgic paroxysm by the administration of large doses of quinine—the chill is broken, but the disease is not cured—a new set of symptoms is simply developed.

Periodical neuralgia (that which comes on at a certain time of day) seems to depend upon a miasmatic influence, as truly as does the chill, and such a view is confirmed by the fact that both are promptly relieved by the same class of remedies.

Also, where neuralgia has its origin in rheumatism or gout; when they are cured there is no more neuralgia.

When the *tic doloureux* is caused by a decayed or ulcerated tooth, immediate relief is always afforded by the removal of the tooth. When, also, it is the offspring of uterine disease, it, with the weakness and irregularity, will all pass away, under proper treatment for uterine disease. Such may be said of all diseases upon which neuralgia depends. *Cure the disease, and the painful neuralgic symptom ceases.*

E. J. FRASER, M. D.

San Francisco, Mar. 10, 1871.

"Bread and butter," and milk, are the only two articles of food which have all the elements of nutrition; hence from childhood to extreme old age, we are never tired of them.

IMPORTANCE OF REVACCINATION.—There is a case on record of a woman who was vaccinated, we believe, by Jenner himself, who then resisted variolous inoculation, who some years after nursed her own children through the small-pox with impunity, and who, nevertheless, at a very advanced period of life, caught the disease from a grandchild, and died.—*Lancet*.

DEATH FROM ETHER.—A fatal result from ether inhalation has come to light in Boston, in the person of a man who had received a bullet wound in the knee.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIBERS receiving the SCIENTIFIC PRESS, who would prefer the PACIFIC RURAL PRESS, will oblige by sending early notice to this office.

San Francisco:

Saturday Morning, March 11, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 8, 1871. Legal Tenders buying @90½; selling @91. Gold in New York to-day 111½.

Table of Contents.

The Smith Truss Bridge, Ill; Copper Mining in Cornwall; Hercules Powder.....	145
MECHANICAL PROGRESS.—Wooden Railroads; Tramway for City Streets; Spiral Cutter for Planers; Cast Rails; Safety Car Truck.....	146
SCIENTIFIC PROGRESS.—Phoenixville Bone Cave; Metaphosphoric Acid; Glaciers of the Pacific Slope; Nature of the Earth's Interior; Phosphorus Essential for Fungoid Growth.....	146
Notes on Tuolumne County; Cops District, Nevada; Right and Left; Curious Vocation; Curious Telegraph Cable Statistics; Getting Newspapers into Paris; Sale of New Mexico Mines.....	147
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.....	148, 149
List of Patents; Notices of Recent Patents; Drawing a Circle, Ill.; Why Circles Please the Eye; Greasing Wagons; Coal near Monterey; Narrow Gauge in Tennessee.....	150
Chemistry and Its Applications; Neuralgia.....	151
Notices to Correspondents; Academy of Sciences; Gerrish and Hinkle Furnace; Separating Gold and Silver by Chlorine Gas; Mercantile Library; University of Cal.....	152
New Diamond Drill Tunneling Machine, Ill.....	153
HOUSEHOLD READING.—Domestic Industry; Make Your Own Soap; To Get Rid of Rats; Domestic Receipts; Mechanical Hints; Life Thoughts, etc.....	154
Contributions to Our Cabinet; New Window Fastener; Sheffield Scientific School; Alvarado Sugar Factory; A High Compliment.....	156

Notices to Correspondents.

AN OBSERVER sends us a long communication concerning the Stetefeldt furnace, which we must decline. We are ready to publish criticisms, but this letter contains matter which is decidedly libelous and concerning parties whom it was altogether superfluous to bring into the discussion. The characters of J. Ross Browne and the mill companies have nothing whatsoever to do with the question of the merits or demerits of any furnace. Our columns are open to the writer if he will confine himself strictly to his subject.

Separating Gold and Silver by Chlorine Gas.

We have previously described the process of separating gold and silver by means of chlorine gas, as invented by Mr. F. B. Miller, melter and refiner of the mint at Sydney, Anstralia. This process consists, in brief, of passing the chlorine into the melted bullion as long as it is absorbed by the silver, which it converts into a chloride. This last is then poured off, in a fused condition, from the gold which solidifies the more quickly on cooling, and is reduced in any one of the various methods. The gold can easily be obtained .995 fine, the loss of the precious metals is said to be very small, and the cost of refining very considerably reduced.

Mr. Miller's process was thoroughly tested at the Sydney mint about a year ago, and the experiments resulted so favorably that the method was adopted and has since been used with advantage. Then the London mint introduced it. Now we hear that Mr. Miller is engaged in setting up his apparatus at the Philadelphia mint, the authorities there having determined to examine it with a view to its adoption in the United States. All this is very complimentary to Mr. Miller.

A FOG WHISTLE has lately been made at Portland, Me., for the Lighthouse Department, which is said to be the biggest yet made in the U. S. It is an 18-inch whistle and weighs about 450 pounds.

Academy of Sciences.

Ancient Coin—Active Glaciers.

At the meeting of the Academy, on Monday, a coin was presented which was found in a Chinese Camp on Wolf Creek, Grass Valley. It is of copper, about the size of a dime, and dated 1717.

Prof. Davidson called attention to an article in the *Atlantic Monthly* for March, by Clarence King, in which the first discovery of active glaciers in the United States is claimed for his party. In 1856 or 1857, Lieut. (now General) Kautz, U. S. A., attempted to ascend Mt. Rainier, but was prevented by glaciers which he found. An account of his experience was published in the papers of the day. Mr. King, in the article alluded to, says that probably glaciers may be discovered on Mt. Baker; but a member of the Alpine club published a description, with illustrations, in *Harper's Magazine* of November, 1869, of glaciers on this mountain.

Prof. Davidson in this connection, said that he had received a letter from Prof. W. P. Blake, a member of the Academy, correcting statements which have been published to the effect that the Western Union Telegraph company's expedition made the first discovery of glaciers on the Stikoon river in 1866. Prof. Blake published, in the *Sacramento Union*, in 1863, a description of the same glaciers, and gave, in a pamphlet, drawings of them. Here, if Prof. D. was not mistaken, the existence of four or six glaciers on the right bank of the stream was noted.

The Late Eclipse.

Prof. Davidson read extracts from letters received from members of the expedition to the Mediterranean to observe the solar eclipse in December last, and gave a few of the results obtained. The expedition met with marvellous success. It might be mentioned as a flattering circumstance, that the actual time of the eclipse, as determined by the photographs, differed no more than one or two seconds from the predicted time, as calculated in Professor Pierce's tables, while it differed 100 seconds from the time calculated in the tables used by the Italian astronomers. By means of the spectroscope the time of the eclipse was also given, the first time such a thing was ever done. The arrangements of the party were most complete, and although the day was cloudy, very much was accomplished. The English expedition was very unfortunate.

The main object of the expedition was to determine the nature of the sun's corona. There have been various theories on this point. One was that it emanated from the sun; another, that it was caused by a lunar atmosphere; still another that the appearance was caused by the atmosphere of the earth. But observations several years ago proved that the moon has no atmosphere, and the last theory named has also been shown to be untenable. The corona belongs radically to the sun, and the outer manifestations are caused by our atmosphere.

It was shown, by the observations, that the corona existed to a height of at least 50,000 miles, perhaps 150,000 miles, above the sun's photosphere. It shines partly by its own light and partly by the light of the sun. This outer atmosphere, at its lowest depth, has not more than one-twentieth the density of our own atmosphere; notwithstanding its great rarity, it sustains the weight of an atmosphere at least 50,000 miles high, attracted by the immense mass of the sun. So great an elasticity denotes a great degree of heat. But is this great heat sufficient to give luminosity to this atmosphere, or are other causes combined?

A New Chemical Element.

A very interesting discovery made, was that of the existence of a new chemical element in the sun's corona. The spectrum shows a green line which has never before been observed,—given by no element or combination of elements now known. What this element is, must be determined by future investigations. The Professor described the manner in which the spectroscope is used in such cases, and how it teaches us the chemical composition of objects. He likewise made some remark concerning his own experience with it.

Grasses.

Professor Bolander stated that he had

collected 140 species of grasses on this coast since 1861. Only 14 had before been observed, owing probably to the rapidity with which observers went over the ground. Among the total number he included several species which were cultivated. He had recently found a peculiar grass, distinguished by a remarkably bright green color, the *Testuca gracillima* or Slender Fescue grass, which he believed to be identical with that found by Dr. Hooker in the straits of Magellan. It grows abundantly from Cisco to the summit, is highly prized by stock-raisers, and is to be recommended for lawns. It is also found in Chili. The Professor remarked on the number of grasses common to Chili and this coast. In his remarks, he stated that the structure of "bunch grass" is probably due to the climatic conditions; such grasses being compelled to aggregate so as to concentrate the moisture and guard against dryness.

The Gerrish and Hinkle Furnace.

In our issue of January 28th, we published a description and illustration of the smelting furnace of Messrs. Gerrish and Hinkle, of this city. As the description was written from the caveat, which is the preliminary protection granted inventors previous to their obtaining a patent, and as it is allowable for persons who have obtained a caveat to modify and work out their original plans as they may thereafter see fit, and consequently we could not know exactly what changes might be made or how far the inventors might abide by what they had, our description was necessarily only such as would give a general idea of the device.

In our issue of March 4th, we published a letter from Mr. A. J. Close, of Inyo county, (with an illustration), in which he criticized one point (as we understood it) of the construction of this furnace. As he appealed to the integrity of our Patent Agency, a reply was made to his communication. It would appear that a number of persons believe that Mr. Close claimed the whole furnace as his (instead of one point in it) which we did not so understand, and our reply was made concerning one print only, and not the whole furnace.

We have received the following letter from Mr. Gerrish in reply to Mr. Close:

EDS. PRESS.—I see, in your issue of March 4th, a communication from Mr. A. J. Close, of Inyo county, Cal., claiming that, 19 months since, he erected a furnace the same as the one claimed by Mr. H. Hinkle and myself. I have examined the illustration of his furnace, and must say that I cannot see any similarity to ours. His is a shaft, eight feet high, covered with a hood, and connecting by means of a flue with the chimney. Ours is a shaft, 20 feet high, all supported on posts and plates, with an arched canal or flue leading into a shaft in which falls a continuous shower of water for the condensation of the fumes, and thence uncondensable vapors escape into the stack. The ore is fed into the shaft 18 feet from the bottom. At the height of 12 feet, the shaft is one-third larger than at the feed-hole or at the bottom, giving the ore opportunity to calcine before reaching the smelting zone.

The furnace described by your correspondent, in my opinion at least, cannot be used for smelting raw ore, which will have to be previously slagged. The statement that nothing was found in his flue is, I presume, correct, as silver, lead, antimony, when once volatilized, will not condense until cold. You might as well try to cleanse the Sacramento River by crooks in its course, as to condense fumes with crooked flues.

But it is a well-known fact that 25 per cent. of lead and silver have been lost by smelting in Nevada. I was informed by Messrs. Ogden & Co., of Eureka, Nev., that they had assays of settlings in the vicinity of their works, which often gave \$80 per ton; and some of the Eureka company assured me that they talked of erecting a flue to connect with condensing chambers in the hill near the furnace. This loss of metal is confirmed by universal experience.

There are other reasons than saving all the metal for using our condenser. It catches the arsenic and other poisonous matter; and some ores contain enough arsenic in a ton to destroy a whole village. I have seen in Europe all of the trees killed for miles around from the fumes of furnaces. The water can also be made, by proper means, to combine with the sulphur

to form sulphuric acid, which is valuable for working copper ores, for instance. Finally, as claiming the posts of a furnace, I should as soon think of claiming the brick. If your correspondent will wait, he will before long see our claims in point.
G. M. GERRISH.

It has been inferred by some, we are told, from our comments, that we expressed an opinion that the Gerrish and Hinkle furnace was "old," had nothing novel in it. Such was not at all our meaning. We referred in all our remarks only to the one point of the supporting of the upper part of the shaft. This, as we said, has been effected one way or another for years; but still if any one can invent a new way he can patent it. And we cannot know but what Mr. Gerrish or Mr. Close or somebody else may hereafter find out some such novel method.

University of California.

The Board of Regents met on Wednesday, the 8th inst. The professors of the Medical Department, elected in consideration of Dr. Toland's offer of his building, tendered their resignation on these grounds; "After the acceptance of his terms by the Regents, Dr. Toland refused to convey the property except on terms which were not only new but entirely inadmissible. It therefore seems to us but just that the Regents should be released from all embarrassment by reason of our election under these circumstances."

On the recommendation of the proper committee, resolutions were adopted to this effect, that the Regents of the University will establish a Board to be known as "The Board of Medical Examiners of the University of California," and will annually appoint the members of said Board, whose duty it shall be to examine all students applying for a medical diploma from the Medical Colleges of the Pacific States and Territories. Also, that the Regents will confer degrees upon such students of medicine as may be recommended therefor by the Faculty of their respective colleges, and whom the Board of Medical Examiners shall report entitled thereto, and upon none others.

Besides the financial business transacted, the quarterly report of President Durant was received and referred to the Committee on Instruction. A resolution was passed inviting the Society of Associated Alumni of the Pacific Coast to hold their next annual meeting in connection with the Commencement exercises of the University on the 19th of July. According to the President's report, the total number of "students" in the University is 788, including 501 who attend the special course of lectures before the Mechanic Arts College in this city, and about 200 in the Fifth Class.

MERCANTILE LIBRARY.—We have received the sixteenth, seventeenth, and eighteenth annual reports of the Mercantile Library Association of San Francisco, for the years 1868, 1869, and 1870. The President gives a review of the affairs of the institution during these years, and the Librarian gives a statement of the operations of the various departments of the Library during the same period. It appears that the whole number of members at present belonging to the association is 2,020, of whom 337 are Life Members, 78 are Honorary Members, and 1,605 Subscribing Members. The whole number of volumes at present owned, is 30,002. The Treasurer's report shows a balance in favor of the Library of \$19,288. Mr. R. B. Swain says, in the conclusion of his report:—"With a revenue exceeding the expenses about \$1,200 to \$1,500 a month, which will be increased, it is hoped, by an increase of membership, I see no reason why this Association may not become one of the most prominent literary institutions of the country. It is for members, as well as the public at large, to decide how soon it shall reach so exalted a position."

A RAILROAD is proposed from Santa Cruz to Gold Gulch, a distance of eleven miles, to be constructed this summer.

A New Tunneling Machine.

All of our readers are undoubtedly familiar to some extent with the diamond drill. We described the various machines of Messrs. Severance & Holt in the Press of May 7th, 1870, when they were introduced for the first time on the Pacific Coast. We need not, therefore, give any further details now concerning the drill, except as far as new improvements have been made.

The value of black diamonds for cutting rock has been well demonstrated during the last ten years. The main difficulty in bringing them into general use has been in regard to feeding or advancing the

it has succeeded. In this rock on the New Haven and Willimantic R. R., where only 8 to 12 feet of drilling could be made by hand in one day by three men, the machine drilled 30 to 36 feet. At Hell Gate, New York Harbor, it gave very interesting results. At Clinton Gulch, Colorado Territory, by means of this drill a hole was made 417½ feet horizontally, and a core brought out so as to show the nature of the rock for the whole distance. In this last case, the machine was placed in the tunnel 600 feet from the outer air, and was driven by compressed air.

Since the report was written, in the iron beds of New York, a depth of 447 feet has been reached, and in Pennsylvania, the

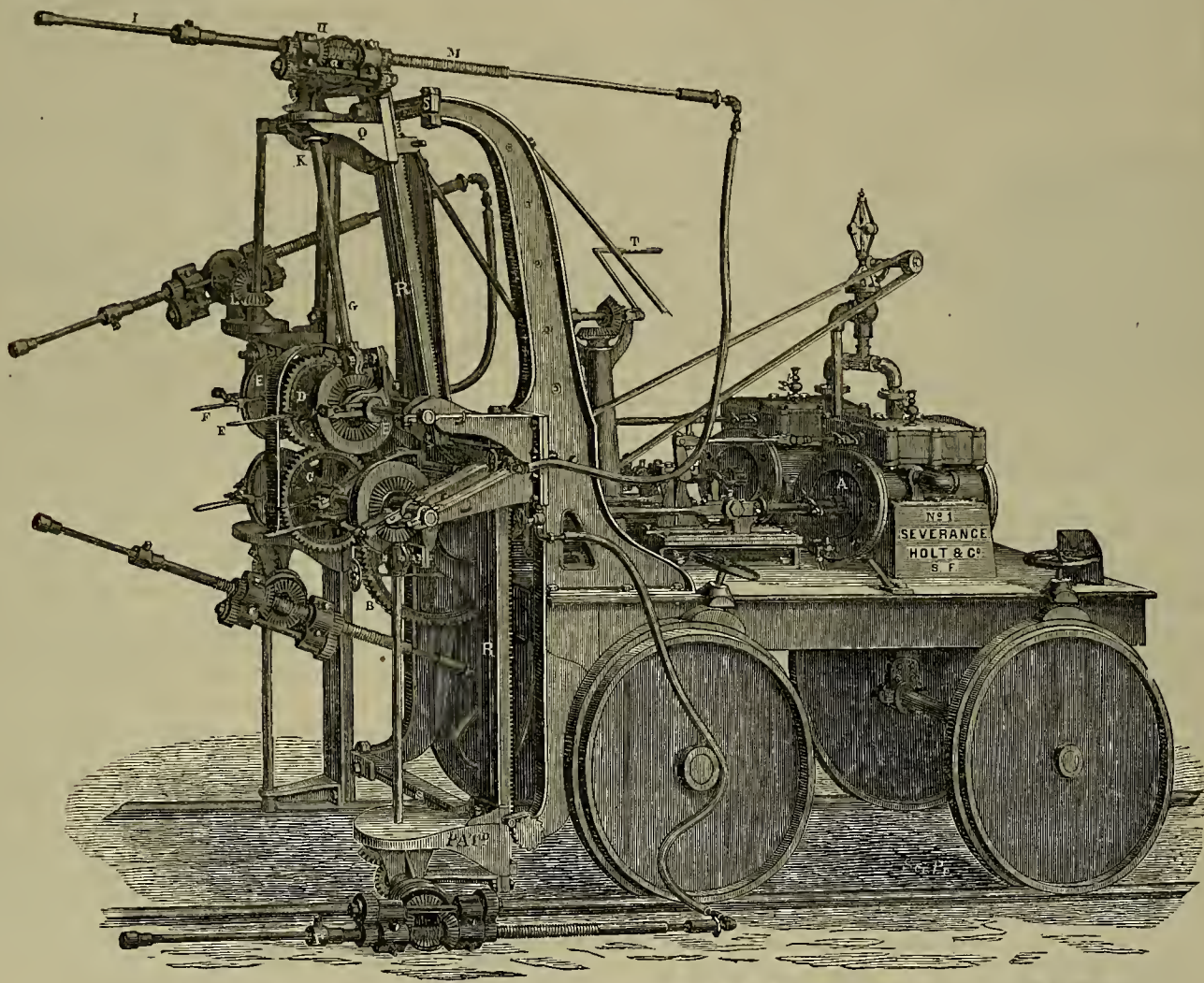
pany to improve and oversee the construction of their drills and machinery. By this construction, the drills can be moved to any point in the face of the tunnel without disturbing the position of the machine. The machine has been on exhibition at the Fulton Foundry, in this city, where it was manufactured, and of this machine we give now an illustration and description.

The engines, A, are of the ordinary construction and drive the wheel, B, which gears into the wheel, C, for driving the two lower drills, and the wheel, D, for driving the two upper drills. The other parts are merely repetitions in the case of each individual drill, and hence it suffices to describe those of any one drill. We take in this case the upper right hand one, as showing most clearly the details in the cut.

The wheel, D, then, drives the friction

down on R, and the bar, R, carrying G and the whole driving arrangement, can be moved horizontally on S. By this construction the drills can be directed to any desired point whatsoever on the face of the tunnel with the greatest ease. For the sake of illustration, in the engraving, the drills are shown in four different positions, I being at the highest point, where it can bore close to the roof, and I', at the lowest point, boring at an even lower level than the track.

When the screw-shaft, M, is fed in its whole distance, in order to run it back it is only necessary to release the friction-nut holding N, and to hold the feed-shaft, O, when the screw-shaft runs up with the same motion of the engine which carried it down, but with a velocity sixty times greater; that is, the speed with which the drill leaves the rock, bringing the core with it, is to the



NEW DIAMOND-POINTED DRILL TUNNELING MACHINE, MANUFACTURED BY SEVERANCE, HOLT & CO.

drill. Messrs. Severance & Holt, the assignees of the patent for the United States, have long been at work to overcome this difficulty, and their efforts have certainly been crowned with success to a very great degree. We find their machines mentioned favorably in all publications which treat of such matters. We might refer, for instance, to that part of Commissioner Raymond's last report, which considers the mechanical appliances of mining, which was very carefully prepared by Prof. W. P. Blake. We make a few (condensed) extracts therefrom with regard to what has been done.

The annular diamond drill, it says, has been used for testing the nature of the rocks at considerable depths in many places, and it is evidently destined to be of very great service to mining industry. Holes have been repeatedly bored, and cores extracted, from depths of 300 to 400 feet. At the lead mines in Missouri, the sandstone quarries in Connecticut, the iron beds of New York, the coal beds of Pennsylvania, depths of 150, 312, 340 and 274 feet, respectively, were reached, and the existence and nature of valuable deposits (sometimes not before known) were tested and proved. In hard trap rock in which hand drilling had proved a failure,

drill has bored holes to a depth of 750 feet!

During the past year, the owners of this invention have been using their machines in various portions of California for prospecting purposes and for boring artesian wells. In Tuolumne county, they bored seven perpendicular holes through hard talcose slate, porphyry and sandstone, varying in depth from 30 to 157 feet, bringing out a perfect core showing the stratification and nature of the rock through which the drill passed. In Calaveras county, the same machine was equally successful, the holes here being drilled at an angle of 45°, through rock largely composed of crystalline quartz, and reaching a depth of 100 to 330 feet. In San Francisco and Marin counties, a different style of machine, having, however, the same boring apparatus, was used for artesian wells, reaching down from 100 to 327 feet. They are now working prospecting drills in Monterey county and in other portions of the State.

Messrs. Severance & Holt are constantly improving their machinery and adapting their drills to the peculiar conditions of the various localities. Since coming to this coast, they have been induced to provide several forms which would apply more particularly to the special needs of our miners. They have just now completed an improved tunnel drill for the Blue Gravel Mining Company at Smartsville. This has a new style of adjustable attachment which was invented by the chief engineer, Mr. N. W. Robinson, who is employed by the com-

pany to improve and oversee the construction of their drills and machinery. By this construction, the drills can be moved to any point in the face of the tunnel without disturbing the position of the machine. The machine has been on exhibition at the Fulton Foundry, in this city, where it was manufactured, and of this machine we give now an illustration and description. The engines, A, are of the ordinary construction and drive the wheel, B, which gears into the wheel, C, for driving the two lower drills, and the wheel, D, for driving the two upper drills. The other parts are merely repetitions in the case of each individual drill, and hence it suffices to describe those of any one drill. We take in this case the upper right hand one, as showing most clearly the details in the cut. The wheel, D, then, drives the friction

clutch, E, which is thrown in or out of gear by means of the lever, F. By means of beveled gear, as shown, the upright shaft, G, is actuated, and through this the gear, A, which drives the gear, H, and thus the screw-shaft, M, with the drill, I, passing through it as denoted in the engraving. A coarse thread is cut on the outside, and nearly the whole length, of the shaft, M, which carries a spline by which it is feathered to the sleeve-gear, H. This sleeve-gear is double and connects by its teeth, H, with the beveled driving gear, A, and by its teeth, h, with the release gear, N, on the feed shaft, O. On the other end of this feed shaft is the gear, P, fitting the nut nut gear, P, whereby a differential feed is produced.

There is a friction-nut which holds the release gear, N, and thus is obtained, in connection with the above, a combined differential and frictional feed, which renders the drill perfectly sensitive to the character of the rock through which it is passing, and maintains a uniform pressure upon the same. The severe and sudden strain upon the cutting points, incidental to drilling through soft into hard rock with a positive feed, is thus avoided.

By means of a nut at K, the drill can be held in any desired horizontal position to which it may have been adjusted, and by means of another nut (not visible here, but indicated on another drill by L), the same is possible for any vertical position. Again, the bracket, Q, to which is attached the screw-shaft, M, with all the gearing connected therewith, can be moved up and

speed with which it penetrates it as sixty to one—the revolving velocity in both cases being the same.

The machine is well constructed in all its parts and reflects credit on its inventor and its builders. It is mounted on wheels which are actuated by proper connections from the cranks, T. When in position, the wheels are held firm by the brakes above them, and the machine is perfectly steady. Each drill, we must not forget to state, runs independently of the others and can be stopped or started without interfering with the others or stopping the engine.

The motive power can be either steam or compressed air, but naturally in a tunnel, air is decidedly preferable for obvious reasons. Proper compressors are supplied with this device.

The machine has been on exhibition at the Fulton Foundry, where we have seen it in operation once or twice. It ran remarkably steadily and did good work, boring in hard sandstone, and in Chinese and Folsom granite at the rate of one to two and a half inches per minute. It has been examined by a number of persons versed in mining and other engineering works, and we have heard none but favorable opinions expressed concerning its work. To attend the drills, only two men are required.

This machine will soon be in operation at Smartsville, where undoubtedly full reports of its work will be published. Messrs. Severance, Holt & Co., 318 California street, are owners of the patent rights of the diamond drill, and may be addressed for particulars and terms concerning their machine.

HOUSEHOLD READING.

Domestic Industry.

As the forest furnishes timber, and the quarry stones in the rough, which must be hewed and polished before either is fit for use; so Nature, cultivated, furnishes food, which art must dress and prepare, before it is suitable for the palate or digestion; and so essential to our welfare and happiness is this preparation, that we have ever wondered why such work was so persistently made menial.

It requires no elaborate reasoning to show that every mother, wife and daughter should become a practical worker in the domestic circle. The days for romance have passed, the night for dreamy visions of elegance and luxury, in connection with a life of idleness, is, or should be giving place to the dawn of industry and utility.

It is well that woman should be queen in the parlor; but she should also be able, if need be, to be queen in the kitchen. The more gracefully she is able to perform the duties of mistress of an establishment; with so much the lovelier grace will she be able to perform whatever less pleasant duty circumstances may require of her.

The services of a good cook are essential to good health, good temper, and the fullest enjoyment of peace and quiet in any family. The art of cooking, so far as real happiness in this world is concerned, is superior to all other arts; and should be made as much a study, by our daughters, as any other.

Labor should not be held in disrepute by any one. The written word:—"In the sweat of thy brow shalt thou eat bread," should not be considered so much a penalty, as a blessing. The labor which is necessary to produce the "sweat" is the means of invigorating the body; without such labor, in some form, the blessings of health cannot be enjoyed. It is a false sentiment which suggests "exercise" instead of "labor;" the latter is the true and honest term—and it should be considered all the more honorable if connected with utility. We never could hammer a log with the back of an axe, for "exercise." We always preferred to use the cutting edge, with which to make the chips fly, and thus unite utility with our labor. We have ever preferred the buck and saw, interchanged with the hoe and spade and the pump-handle, to dumb bells; and though at the age of almost threescore years, we have not yet seen the folly of our choice, and never expect to.

The word "thy," as quoted above from Holy Writ, is generic, and stands for both sexes. Will not the ladies, whose opinions and actions more especially mould public opinion, endeavor to effect a reform in the industry and economy of social life? They can do it if they will—make idleness and indolence disreputable, and labor and usefulness honorable. The kitchen and the garden present to them the most accessible and useful field in which to work out the problem.

BE CORRECT.—Few persons engaged in domestic matters are aware how much mischief is often done by even very small deviations from the proper rule of cooking. To illustrate—A lady in measuring out the ingredients for a batch of cake, had a small quantity of flour left. She deliberated a moment, then tossed the flour into the cake, saying; "It is too much trouble to go back to the pantry with such a little mess—just that little won't do any harm." But it did—destroying the proportions and spoiling her cake. Receipts are often found fault with, and thrown aside as worthless when the blame lies in the unexact manner in which they are followed. If anything is worth doing at all, it is worth doing well.

Make Your Own Soap.

Every farmer and every family, indeed, has a large amount of grease and drippings, more than enough to make all the soap needed for the family. The manufacture of your soap is a great piece of economy, and it is easily done—even to nice toilet, fancy and shaving soap. We append hereto

How to do it.

Take the best hard wood ashes, which must be kept dry while saving them. When put in the hopper, mix a bushel of unslacked lime with ten bushels of ashes; put in a layer of ashes; then one slight sprinkling of lime; wet each layer with water—rain or river water is best. A layer of straw should be put upon the bottom of the hopper before the ashes are put in. An opening in the side or bottom for the ley to drip through, and a trough or vessel under to receive the ley. When the ley is strong enough to bear up an egg, so as to show the size of a dime above the surface, it is ready for making soap: until it is, pour it back into the hopper, and let it drip through again. Add water to the ashes in such quantities as may be needed to keep them dripping. Have the vessel very clean in which the soap is to be made. Rub the pot over with corn meal after washing it, and if it is at all discolored, rub it over with more until the vessel is perfectly clean. Melt three pounds of clean grease; add to it a gallon of weak ley, a piece of alum the size of a walnut. Let this stew until well mixed. If strong ley is put to the grease, at first, it will not mix well with the grease. In an hour add three gallons of strong ley; boil briskly, and stir frequently; stir one way. After it has boiled several hours, cool a spoonful upon a plate; if it does not jelly, add a little water; if this causes it to jelly, then add the same proportion of water to the kettle. Stir quickly while the water is poured in, until it ropes on the stick. As to the quantity of water required to make it jelly, judgment must be used; the quantity will depend upon circumstances. It will be well to take some in a bowl, and notice what proportion of water is used to produce this effect. You will now have soft soap.

To Harden it: Add a quart of salt to this quantity of soap; let it boil quick, ten minutes. Pour it into some suitable vessel, so that when the soap is cooled, (which will be in about 24 hours) it can be turned over, and the vessel be drawn away, leaving the soap in a mass, corresponding to the interior of the vessel. It can now be cut into cakes or bars, with a string, when it will be ready for use.

To Prepare it for the Toilet: Scrape off all sediment; shave it very thin; put it in a tin-pan, and hardly cover it with water. Set it on the fire; mash it to a jelly, and perfume with lavender, sassafras, or anything preferred. It will be nicer if it is melted in water and cooled two or three times before shaving it.

Soap will improve by age if kept well boxed in a cool, dry place.

How to Get Rid of Rats.

Somebody has suggested, what we should think might be a very effective, safe and economical method of getting rid of rats. If it works well with rats, why not equally well with gophers? Will some one try it for both purposes and report success or otherwise to the *RURAL*, for the benefit of others.

Put potash in their holes and paths. The rats will get it on their feet and over their fur, then lick it, not liking the taste of it, as it burns them somewhat. The more they see of it the less they like it, so they clear out almost as soon as the application is made.

Somewhat similar to the above, and also safe, has been suggested as follows:

To rid your premises of rats, powder the holes well with dry cayenne pepper. It will get into the eyes and nose, and the same rats will never be seen there again. Mice may be treated in the same manner. And why not gophers and squirrels?

To Clean Black Cloth.—Dissolve one ounce of bicarbonate of ammonia in one quart of warm water. With this liquid rub the cloth, using a piece of black cloth for the purpose. After the application, clean the cloth well with clear water; dry and iron it, brushing the cloth from time to time in the direction of the fibre.

OBJECTS seventy-two feet long can be distinctly seen on the surface of the moon by great telescopes of the Earl of Rosse and Lord Oxmantown.

Domestic Receipts.

AN EXTRA DISH.—Oranges peeled and divided at the natural partings; three whites of eggs, for two oranges, beaten to a stiff froth, and the pieces of orange slipped in. Then thickly dusted with sugar and baked.

GERMAN LOAF CAKE.—Make a sponge the evening before you wish to bake the cake, of a tea-cupful and a half of milk, and as much flour stirred into it as will form a thick batter, with a little salt and one gill of good yeast. In the morning this sponge should be light. Then beat a quarter of a pound of butter with half a pound of sugar, until light. Add to it two tablespoonfuls of cinnamon, a pound of dried currants. Put the whole into the sponge, with flour enough to form a soft dough. Butter a pan, and, when it is light, bake in an oven about as hot as for bread.

To Dress Cold, UNDERDONE BEEF.—Cut it in thick slices; season well with pepper and salt; dredge with flour, fry in hot lard to a light brown. Then take the slices out of the lard, lay them in a stew-pan, and pour over them half a tumblerful of hot water. Now rub a teaspoonful of flour into a tablespoonful of butter and put the same into the pan. Stew with the cover on, a quarter of an hour. Then season the gravy with catsup, to your liking and pour over the meat. Serve hot and your meat will be as good or better than when first stewed.

To Keep Fish FRESH.—After cleaning the fish, and wiping dry, sprinkle it thoroughly with black pepper, fine salt and brown sage.

To Pickle Onions.—Do not put into vinegar direct; but first, after peeling, boil in milk and water for ten minutes, then drain off the milk and water and pour over the onions cold spiced vinegar.

Mechanical Hints.

Absorption of Bricks.—A dry common brick will absorb at least a pint of water. Pressed brick will not absorb one-half as much, being harder and more compact. From this fact one can form some idea of the amount of moisture retained in a brick after a heavy shower, or more especially during the rainy season. Paint fills the pores of the brick, and forms a covering or metallic coating which effectually prevents absorption.

VARNISH FOR SHOES.—Put a quarter of a pound of gum shellac, broken up in small pieces, in a pint bottle, cover it with alcohol, cork it tight, and put it on a shelf in a warm place; shake it well, several times a day, then add a piece of camphor, half as large as an ordinary sized hen's egg; shake it well and in a few hours shake it again, and add half an ounce of lampblack. If the alcohol is good, it will be dissolved in three days; then shake and use. If it gets too thick, add alcohol, pour out two or three teaspoonfuls in a saucer, and apply it with a small paint brush. If the materials are good, it will dry in about five minutes, and will be removed only by wearing it off, giving a gloss equal to patent leather. The advantage of this preparation over others is, it does not strike into the leather and make it hard, but remains on the surface, and yet excludes the water almost perfectly. The preparation is admirable for harness and does not soil when touched, as lampblack preparations do.

USE OF SULPHATE OF BARYTA IN WHITE WASHING.—Sulphate of baryta, or the so-called "fixed white," is strongly recommended as a substitute for lime in white-washing. For this purpose an ounce of glue is to be softened for some hours in cold water; and afterward heated in a water-bath with a quart of warm water, until completely dissolved. At the same time six or eight pounds of fixed white are to be stirred up with warm water in another vessel to a kind of milk, and the two poured together, and applied warm with a white-wash brush or otherwise.

JORDAN'S WOOD CARVING MACHINE.—Jordan's original carving machinery was invented in 1845, and received the gold medal of the Society of arts in 1847. A number of the machines were put in action in 1846, on the carved decoration of the houses of Parliament, and continued to be used during the progress of that work. The same machines are now employed by a large number of firms in England. The inventor still continues to build them, and has recently introduced a smaller one for amateur carving, which, like the original, has the power of carving the entire round figure, or any extent of undercutting, which can be effected by hand carving. This machine is a great labor-saver.

Life Thoughts.

God thinks more of the good than of the world-popular.

HOPE is the dawn of joy, and memory its twilight.

THERE is no shady side to the pathway of duty.

EDUCATION is the chief defense of nations.

THE deepest love shows itself in the eye and touch.

"Little children loved him," is the only epitaph I care about.

"THERE is nothing great on earth but man; there is nothing great in man but mind."

It is always in our power to make a friend by smiles; what a folly, then, to make an enemy by frowns.

SLOTH makes all things difficult, but industry all easy; and he that rises late must trot all day, and shall scarce overtake his business at night; while laziness travels so slowly, that poverty soon overtakes him.

MAN was never intended to be idle. Inactivity frustrates the very design of his creation; whereas an active life is the best guardian of virtue, and the greatest preservative of health.

SATIRE is a sort of glass, wherein beholders generally discover everybody's face but their own, which is the chief reason for that kind of reception it meets in the world, and that so very few are offended with it.

EXEMPTION from care is not happiness; on the contrary, a certain degree of care is essential to promote enjoyment.

INFINITE toil would not enable you to sweep away a mist, but by ascending a little you may often look over it altogether. So it is with moral improvements; we wrestle with a vicious habit, or with a slanderous report, which would have no hold upon us if we ascended into a higher moral atmosphere.

Aim at Something.

Multitudes of men *relax* nothing, because they *devise* nothing—*perfect* nothing, because they *project* nothing. "They simply float on the surface of the occasion and trust to the sublimity of luck." Micawber-like, they are "waiting for something to turn up."

He is a most unreasonable man, who expects to achieve, by accident, that which every successful man achieves, only, of set purpose. He is more unreasonable, who enters a bill of indictment against Fortune, for being so hard with him, when he is so hard with himself. He upbraids poor blind Fortune, because she does not come and heap upon his head a lap-full of good things, while, really, he does not a single good thing for himself.

A marksman will tell you, that if you would hit the target you must aim at it. No random shots are expected to "drive the cross"—it will not happen once in a million of chances, especially if there be no idea of the direction in which it lies. Yet there are thousands of good, easy people—credulous, sanguine souls—who expect to hit the mark, not only without taking aim, but without shooting at all.

We should say, that with this class of persons there is an overgrowth of hope. They have been indulging high hopes all their lifetime and have not realized one of them. Is it not strange that they do not grow weary of their vain hopes and try some other expedient? The truth is, we suspect, they have reached the conclusion that it is easier to hope than to work. In their present aimless, do-nothing calling, the outlay is but little or nothing, and although the income be nothing, it is pretty good considering that there is no investment, and no risk at all, except the risk of a slight disappointment.

GOLDEN OPPORTUNITIES.—As wealth is for the most part accumulated by the constant saving of small sums, so knowledge is acquired by constant, though it may be almost imperceptible acquisitions. "Line upon line" is the one sure way of conquering the difficulties that lie in the path. The saving of time, even its moments, is an important element. Some wait for great opportunities, suffering the days, months, and even years, to pass away in mere resolves to become learned. The choice of a profession, a calling, or an object of attainment in the pursuit of knowledge, and not a resolution to work, merely, but a working on, in season and out of season; saving moments is the surest way to reach the goal.

Business Cards.

A NEW PATENT.



If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroline, that will not loose while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.



JOHN GORMAN.
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

GILES D. GRAY. JAMES M. BAYER.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO. 37v16

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work,
such as Boilers, Furnaces, Ovens, Grates, Ranges, &c.,
Orders left with C. W. WHITE, 47 Clay Street, JOS.
THORNHILL, 1612 Mason St., near Green, will be
promptly attended to. 24v21-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

THE EYE! THE EAR!
DR. D. E. DUDLEY,
Surgeon, Oculist and Aurist,
Has removed to his new rooms, 24 Post street between
Montgomery and Kearney. 3v22-3ms

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes.
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Oarratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
5v14tf SAN FRANCISCO



J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Grass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

Connecticut Mutual Life

INSURANCE COMPANY,
OF HARTFORD, CONN.

Incorporated 1810.

ASSETS, - - - - - OVER \$30,000,000.

Surplus over \$8,000,000,
INCOME FOR 1869, - - - - - \$8,978,751 25

Appropriated for Dividends payable in 1870, \$2,300,000.

Total Claims by Death paid to date, over \$5,560,000. Total Dividends Paid to Date, over \$6,700,000.

Ratio of Expense to Total Income 8.89, Only.

A Purely Mutual Company.

All its surplus is equitably divided among the Policy-Holders in

ANNUAL DIVIDENDS,

Which may be applied in reduction of Premiums, or may be accumulated at interest
for the benefit of the Assured, or may be received by them in Cash. Paid up
Policies are granted after two or more years' Premiums have
been paid, thus practically making

ALL POLICIES NON-FORFEITING.

OFFICERS:

JAMES GOODWIN, President. ZEPHANIAH PRESTON, Vice-President.
EDWIN W. BRYANT, Actuary. WOODBRIDGE S. OLMSTEAD, Secretary.
LUCIAN S. WILCOX, M. D., Medical Examiner.

General Agent for the Pacific Coast.
JAMES B. ROBERTS, 315, California Street, San Francisco, Cal.

NORTH-WESTERN MANUFACTURING COMPANY.

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



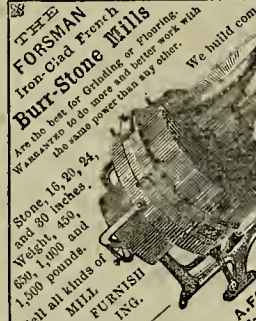
MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,
Brass and Iron Goods for Steam and Gas Fitters and Engine Builders
Cast Iron and Malleable Iron Fittings and Castings.
Steam Warming and Ventilating apparatus for public and private buildings. Hoist-
ing Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest. C. S. CRANE, Vice Prest. S. W. ADAMS, Sec'y.

EVERETT HOUSE,
Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amuse-
ment.
The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,
are within one block. The house is NEATLY AND ELE-
GANTLY FURNISHED THROUGHOUT, and travelers from Cal-
ifornia, Oregon and the Territories, will find the
Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best
possible treatment.
TERMS---\$2.50 per day.
BYRON A. BALDWIN & CO., Proprietors.
2v22-3/4clmins



FORSMAN
Iron-Cast Front
Butt-Stone Mills
Are the best for Grinding or Flouring, and
Warranted to do more and better work with
the same power than any other.
Stone 16, 20, 24,
and 30 inches,
Weight 400,
600, 1,000 and
1,500 pounds.
Sell all kinds of
MILL
FURNISH-
ING.
We build com-
plete
MILLS, including
Rolling Churns or
all our work
will be
done
J. A. FORSMAN, AGT.
No. 70 South Canal St.
CHICAGO, ILL.

THE NEW TYPE
ON WHICH
THE SCIENTIFIC PRESS
is printed, is from the
CALIFORNIA TYPE FOUNDRY,
405 and 407 Sansome St.
GEO. L. FAULKNER, Agent.
1v22-3mins*

Travelers' Guide.


CENTRAL PACIFIC RAILROAD.

Passenger Sunday, except d. Express Train Daily. JANUARY 22, 1871. Express Train Daily. Passenger Sunday, excepted.

4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
7:58 P.M.	12:40 P.M.	San Jose	5:40 P.M.	
9:35 P.M.	2:10 P.M.	Stockton	1:40 P.M.	8:35 P.M.
	4:10 P.M.	Marysville	9:10 A.M.	7:00 A.M.
	9:00 P.M.	Nesima	4:20 A.M.	
	2:20 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	3:10 A.M.	Winnemucca	4:05 A.M.	
	12:00 M.	Battle Mountain	1:25 P.M.	
	3:10 P.M.	Carlin	10:15 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	1:35 A.M.	Kelton	10:10 A.M.	
	6:10 A.M.	Ogden	5:00 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6:50
8:00, 9 P., 10:20 and 11:10 a. m. 12:00, 1:50, 2:30, 4:00, 5:15
6:45 and 11:30 p. m.
LEAVE BROOKLYN, B 5:15, B 6:30, 7:40, 8:50 and 10:00 a. m.,
1:30, 2:40 4:55 and 6:25 p. m.
LEAVE OAKLAND, B 5:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and
11:50 a. m., 1:40, 2:50, 3:50, 5:05 and 6:35 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:20, E
9:00, BU 9:30 and EU 11:30 a. m., 1:30, 4:00 and 5:30 p. m.
LEAVE HAYWARD, B 4:15, B 7:00, E 8:30, B 9:00 and E 11:00
a. m. and 3:25 p. m.
LEAVE ALAMEDA, B 5:15, B 7:36, E 9:06, B 9:36 and E 11:36 a.
m., 1:35 and 4:05 p. m.
B Sundays excepted. E To Fruit Val. only.
D To Oakland only. C To Fruit Val. only.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



California Pacific
RAILROAD &
STEAMER NEW WORLD
VALLEJO.

The following time will take effect
Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves San Francisco.	Trains Arrive at Callistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:45 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

8:30 A. M.	12:30 P. M.	1:30 P. M.	5:00 P. M.
------------	-------------	------------	------------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train Leave Marysville.	Trains Leave Callistoga.	Trains Leave Sacramento.	New World Arrives at San Francisco.
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:50 P. M.

ON SUNDAYS.

10:15 A. M.	3:00 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 315 Montgomery street, or on board
steamer New World R. S. MATTHEWSON, Superintendent.
N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
L. C. FOWLER, General Freight and Passenger Agent,
Vallejo October 1, 1870. 13v20-ly

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

—IS—
61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York,
WITHOUT CHANGE!
With but one change to Baltimore, Hartford, Provi-
dence, Springfield, New Haven, Worcester, Boston. And
is the most direct route to Washington city.
Express trains on this line are equipped with WEST-
INGHOUSE PATENT AIR BRAKES,
Boston and New England Passengers
will find this route especially desirable, as it gives them
an opportunity of seeing the finest views among the
Alleghany Mountains, besides visiting Pittsburg, Phila-
delphia, and New York without extra cost.
All New England Passengers holding through
tickets will be transferred, with their baggage, to Rail
and Boat connections in New York WITHOUT CHANGE.
Through Tickets via this great short route for sale in
San Francisco, at 422 California street, 208 Montgomery
st., 306 Montgomery st., and at Ticket office of Central
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne
Denver and Omaha. Be sure your tickets read via
Pennsylvania, Central & Pittsburg, Ft. Wayne and Chica-
go route.
T. L. KIMBALL, Gen'l. West. Pass. Agt.
Chicago, Ill.
J. R. ERRINGER, Jr., Travelling Agent,
4v22-ly San Francisco, Cal.

Notice.

To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the
FURNITURE WAREROOMS
OF
George O. Whitney & Co.,
Nos. 31, 317, 319 and 321
FINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v213m

London Agency.—BATES, HENRY & Co., 4 Old
Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London,
will receive subscriptions and advertisements for the
PRESS.

Metallurgy and Ores.

NEVADA METALLURGICAL WORKS,
19 and 21 First st., in Golden State Foundry.
RIOTTE & LUKAARDT.
Ores Crushed, Sampled and Assayed.
Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

CALIFORNIA ASSAY OFFICE
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET.
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MAHS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical Chemist,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

Richardson & Co., Copper Ore Wharves,
SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,600 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1y

**THE ANGEL'S QUARTZ**
Mine Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the
BLAKE STEAM PUMP
Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000
GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSHILD, Secretary. 20v17

**JOSEPH GILLOTT'S**
STEEL PENS.
Sold by all Dealers throughout the World.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Merchandise, Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Cords, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

For
Steam Pipes
& Boilers
Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

Sonora Hotel,
T. BRODIGAN,.....Proprietor
Best Meals and Beds in Sonora, Cal. fe25-3m

Oriental Powder Co.,

MANUFACTURERS OF
Blasting,
Mining, and
Sporting Powder.

Of superior strength and cleanliness.
Patent Compound for Blasting
and Mining.

Electric Batteries, Fuses, and
Leading Wire for Blasting.

Address
A. W. TAYLOR, Agent,
Corinne, Utah.
Send for Circulars. 18v21-1am121

R. H. McDONALD & CO.,
WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices, and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.

etc., on the Pacific Coast. Buyers are
Particularly Requested
to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3mins S. W. Cor. Market and First streets.

(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.
900 pages, large 4-to, profusely illustrated.

This is the only compend of
GAS LIGHTING

ever projected, and will be the standard work of reference among
Companies,
Manufacturers,
Engineers,
Patentees, and
Scientific Men
Generally.
Price \$15.00, Payable on Delivery.
It will be sold only by subscription, which should be addressed to the Compiler,
JAMES R. SMEDBERG,
Consulting Engineer S. F. Gas Co.,
26v21-1f SAN FRANCISCO, CAL.

AMERICAN JOURNAL
—OF—
Science and Arts.
(FOUNDED BY PROFESSOR SILLIMAN IN 1818.)

And new numbering 100 volumes, in two Series of 60 volumes each.
Editors and Proprietors: Professors SILLIMAN and DANA. Associate Editors: Professors GRAY and GIBBS of Cambridge and NEWTON, JOHNSON, BRUSH and VERRILL of Yale.

Devoted to Chemistry, Physics, Geology, Mineralogy, Natural History, Astronomy, Meteorology, etc.
A TIME SERIES in MONTHLY numbers, making two volumes a year of about 450 pages each, from January 1871. Subscription price \$5.00 a year, or 50 cents a number.

A few complete sets on sale of the first and second series. Address
SILLIMAN & DANA, New Haven, Ct.
mail-cow-2w

AGENTS WANTED.

A Magnificent Volume!
INTERESTING! NEW! RELIABLE!

incident and adventure. History, Fact and Humor.
CUBA WITH PEN AND PENCIL.
About 600 octavo pages, 20 beautiful Cuts! 313 Illustrations in all, engraved expressly for this work, in the best style, embracing every variety of subject and presenting

A Complete Panorama of the Island.
Many humorous illustrations are introduced to correspond with the many witty and laughable scenes, incidents, descriptions &c., with which the volume abounds. New style elegant binding. Any one desiring to act as agent, will please apply at once for a circular containing table of contents, and sample of illustrations.
Address,
mail-1m 542 California St., San Francisco.

CAUTION.

BETT'S CAPSULE PATENTS
are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETT'S being the original Inventor and Sole Maker in the United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

DR. F. HILLER,
Homoeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. ma4-6m

The California Powder Works

No. 314 CALIFORNIA STREET.
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,
Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN P. LOHSE, Secretary.

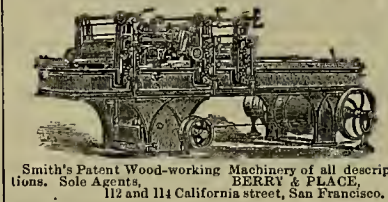
PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON

Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

HAMMERED IRON
Of every description and size
Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention
The highest price paid for Scrap Iron 6v14-3m 9f

WOODWORTH PLANERS.


Smith's Patent Wood-working Machinery of all descriptions. Sole Agents
BERRY & PLACE,
112 and 114 California street, San Francisco.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

El Refugio Petroleum Company,---Location
Santa Cruz County, State of California.

Notice.—There are delinquent upon the following described Stock, on account of assessment levied on the Eighteenth day of January, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo. L. Smith.....	4	30	\$19 50
J. A. Zimmerman.....	6	20	13 00
C. Christensen.....	100	100	65 00
W. H. Thibault.....	17	100	65 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of January, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction, at the office of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Tuesday, the 14th day of March, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

R. WEGENER, Secretary.
fe25 Office, 414 California street, San Francisco, Cal.

North America Consolidated Mining Com-
pany.—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of February, 1871, an assessment of Five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the Company's office, Room 8, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 29th day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 29th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
WM. H. WATSON, Secretary.
Office, Room 8, No. 302 Montgomery street, San Francisco, Cal. fe18-6w

Stockholders' Meeting—Globe Gold and Silver Mining Company. Special meeting of Stockholders.—Location of mine and works, Monitor District, Alpine County, California.

Notice is hereby given, that a special meeting of the stockholders of the Globe Gold and Silver Mining Company will be held at the office of the company, 47 Bryant street, San Francisco, on Monday, the 13th day of March, 1871, at 11 o'clock A. M. of that day, to act upon a proposition to remove the principal office of the company to Monitor, Alpine County, California, and for the transaction of such other business as may properly come before it. Dated at San Francisco, February 8th, 1871.
J. WINCHESTER,
S. SHAFER,
H. WINCHESTER,
Majority of the Board of Trustees of the Company.

fe11-4f

Stockholders' Meeting—Office of Silver

Sprout Mining Company, 205 Front street, San Francisco, February 11th, 1871.

Notice is hereby given, that a special meeting of the Stockholders in the Silver Sprout Mining Company will be held at the office of the company, No. 205 Front street, San Francisco, on Monday, the 20th day of March, 1871, at the hour of 2 o'clock P. M.
fe18-4w T. B. WINGARD, Secretary.

Noonday Silver Mining Company.—Loca-

tion of Works.—White Pine Mining District, White Pine county, Nevada.
Notice.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 19th day of January, A. D. 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R M Bourne, Trustee.....	493	100	\$20 00
R M Bourne, Trustee.....	494	100	20 00
R M Bourne, Trustee.....	513	10	2 00
R M Bourne, Trustee.....	579	bal. 11	2 20
W H Barton, Trustee.....	566	100	20 00
W H Barton, Trustee.....	595	50	10 00
W H Barton, Trustee.....	630	50	10 00
W H Barton, Trustee.....	632	33	6 60
W H Barton, Trustee.....	639	100	20 00
H L Breed, Trustee.....	658	45	9 00
A F Benard, Trustee.....	795	bal. 65	11 00
Child & Jones, Trustee.....	257	50	10 00
Child & Jones, Trustee.....	272	10	2 00
Child & Jones, Trustee.....	621	100	20 00
Child & Jones, Trustee.....	622	100	20 00
Child & Jones, Trustee.....	686	100	20 00
Child & Jones, Trustee.....	688	bal. 11	2 20
Child & Jones, Trustee.....	690	100	20 00
Child & Jones, Trustee.....	692	100	20 00
Child & Jones, Trustee.....	695	100	20 00
Child & Jones, Trustee.....	753	50	10 00
E Cahill & Co., Trustee.....	504	50	10 00
E Cahill & Co., Trustee.....	712	42	8 40
E Cahill & Co., Trustee.....	725	60	12 00
J H Crocker, Trustee.....	723	50	10 00
George Coudon.....	548	100	20 00
G A Geursen, Trustee.....	314	50	10 00
H H Clausen.....	664	100	20 00
John Dryden, Trustee.....	307	100	20 00
W L Duncan, Trustee.....	612	100	20 00
G A Deas.....	760	25	5 00
N Dahlen.....	747	10	2 00
R B Fordham.....	444	66	13 20
E E Eyre, Trustee.....	607	100	20 00
T W Fenn, Trustee.....	746	50	10 00
T W Fenn, Trustee.....	812	50	10 00
A E Hill, Trustee.....	345	50	10 00
A E Hill, Trustee.....	346	50	10 00
A E Hill, Trustee.....	380	50	10 00
A E Hill, Trustee.....	384	50	10 00
A E Hill, Trustee.....	415	50	10 00
A E Hill, Trustee.....	423	50	10 00
A E Hill, Trustee.....	424	50	10 00
A E Hill, Trustee.....	427	100	20 00
A E Hill, Trustee.....	448	125	25 00
A E Hill, Trustee.....	453	10	2 00
A E Hill, Trustee.....	461	5	1 00
A E Hill, Trustee.....	465	80	16 00
A E Hill, Trustee.....	468	10	2 00
A E Hill, Trustee.....	470	20	4 00
A E Hill, Trustee.....	473	5	1 20
A E Hill, Trustee.....	480	50	10 00
A E Hill, Trustee.....	484	10	2 00
N H Hall, Trustee.....	550	50	10 00
N H Hall, Trustee.....	551	50	10 00
N H Hall, Trustee.....	717	100	20 00
N H Hall, Trustee.....	719	100	20 00
N H Hall, Trustee.....	735	bal. 11	2 20
N H Hall, Trustee.....	773	100	20 00
George H Hunt, Trustee.....	569	200	40 00
George H Hunt, Trustee.....	743	50	10 00
George H Hunt, Trustee.....	744	50	10 00
W A Hughes, Trustee.....	722	100	20 0
M P Hall, Trustee.....	763	5	1 00
Lewis Hyman.....	797	21	4 20
Conrad Harnberg.....	813	1050	390 00
R O Ives, Trustee.....	228	20	4 00
R Ives, Trustee.....	236	10	2 00
Wm M Iburg.....	367	5	1 00
R F Kent, Trustee.....	599	50	10 00
Wm F King, Trustee.....	731	80	16 00
Wm F King, Trustee.....	741	20	4 00
L F Leveland, Trustee.....	730	100	20 00
S Lewenberg, Trustee.....	757	60	12 00
McDonald & Whitney, Trustee.....	745	100	20 00
McDonald & Whitney, Trustee.....	764	100	20 00
McDonald & Whitney, Trustee.....	765	10	2
Munson, S. M.....	70	hal 12	2 40
Mitchell, J. S, Trustee.....	399	100	20 00
Mitchell, J. S, Trustee.....	402	30	6 00
Mitchell, J. S, Trustee.....	403	3	60
Martin, M. S, Trustee.....	514	100	20 00
Martin, M. S, Trustee.....	599	100	20 00
Martin, M. S, Trustee.....	681	10	2 00
Mason, Thomas.....	798	60	10 00
Osiander, Julius.....	363	5	1 00
Page, Nath'l.....	69	100	20 00
Page, Nath'l.....	60	33	6 60
Parker, W. C, Trustee.....	661	bal 5	1 00
Parker, W. C, Trustee.....	662	60	10 00
Pupat, G.....	597	10	2 00
Peore, W. S.....	799	100	20 00
Smith, P. N.....	200	10	2 00
Smith, P. N.....	201	10	2 00
Smith, P. N.....	203	10	2 00
Smith, P. N.....	217	13	2 60
Stevens, C, Trustee.....	26	70	20 00
Starkweather, J. B, Trustee.....	537	bal 5	4 00
Schmitt, B. L, Trustee.....	596	50	10 00
Sparrow, S. J, Trustee.....	709	100	20 00
Tibbey, E. S, Trustee.....	755	25	5 00
Uhler, J. Clem, Trustee.....	538	100	20 00
Uhler, J. Clem, Trustee.....	642	100	20 00
Uhler, J. Clem, Trustee.....	646	100	20 00
Uhler, J. Clem, Trustee.....	650	100	20 00
Wahler, H. P.....	14	100	20 00
Welch, H. H.....	534	7	1 40
Williams, Henry, Trustee.....	653	bal 5	1 20

And in accordance with law, and an order of the Board of Trustees, made on the Nineteenth day of January, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at the office of Maurice Dore & Co., Room 21, Hayward's Building, 419 California street, San Francisco, California, on Friday, the 17th day of March, A. D. 1871, at the hour of 1 P. M. of said day, to pay said delinquent Assessments thereon, together with costs of advertising and expenses of the sale.
CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. fe25-5w

Eagle Quicksilver Mining Company—

Location of works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of February, 1871, an assessment of twenty-five (25) cents per share was levied upon the mines of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Room 8, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Tuesday, the 4th day of April, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
WM. H. WATSON, Secretary.

Office, Room 8, No. 302 Montgomery street, San Francisco, California. fe11-5w

Mountain City Mining Company—Location

of mines, Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 18th day of February, 1871, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 205 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the Twenty-seventh (27th) day of March, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the Seventeenth (17th) day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
T. B. WINGARD, Secretary.

Office, 205 Front Street, San Francisco. fe28-4w

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.
Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
13v20-3m

GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
21v17-47

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Donbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets.

SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities.

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

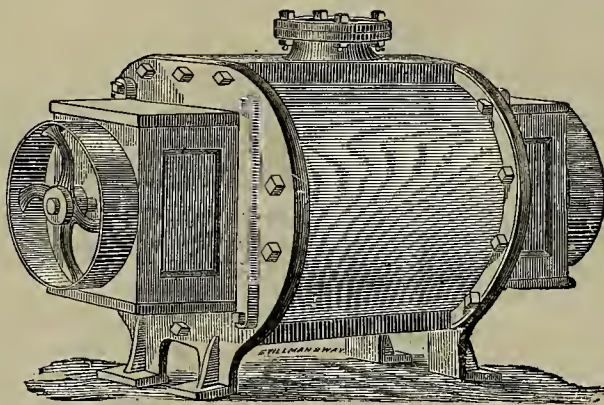
At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 16v21-47

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.



Patented Nov. 1st, 1864; July
21, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting,

Foundry,

Mining

and

Steamships.

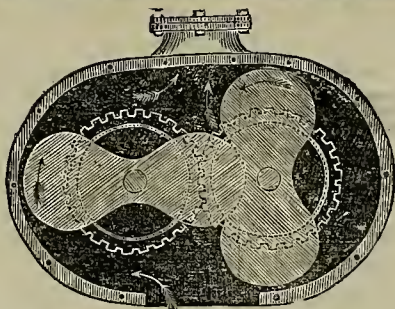
REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.



One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.

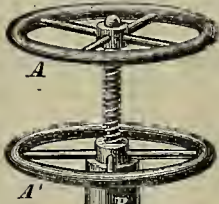
Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.
For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

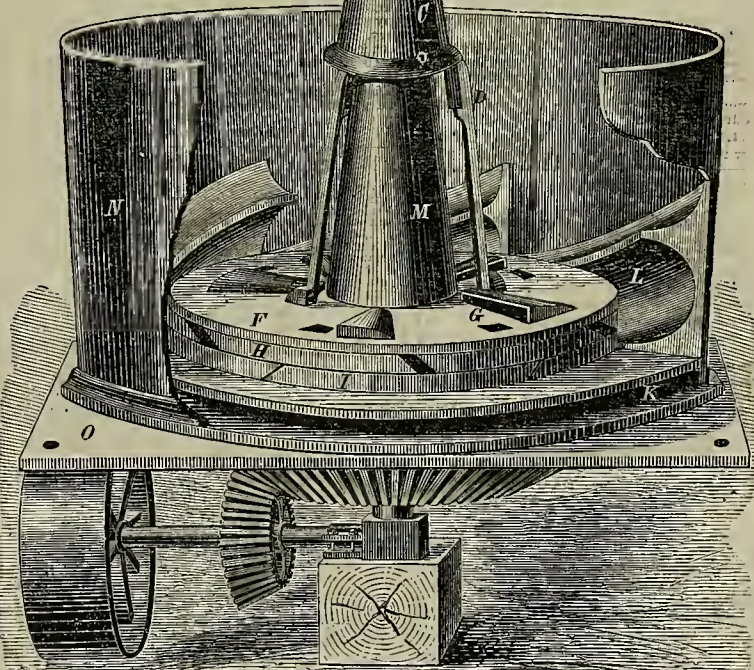
v18-3m

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all
others in several important particu-
lars. The grinding millers are near
the center, requiring less power.
The plow-shaped grooves raise the
quicksilver with the pulp regularly,
with less power, without violence,
and with better amalgamating ef-
fect, besides admitting of a larger
charge. The inclined-shaped hous-
ings of the muller-plate openings
efficiently force the pulp directly
under the mullers.



It has been constantly running
for over eight months, and has
proved, in competition, to produce
a higher percentage of bullion,
with less power and with great
saving of quicksilver, over any
other pan in use. It is simple in
construction and operation, and
cheaper in first cost and economy
in wear.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and pat-
entee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long
been in constant operation. 16v20-1mr, 1amtf

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAIT'S PATENT SHEARS AND
PUNCHES. 3v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

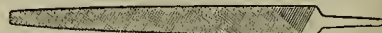
AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20g

PACIFIC FILE WORKS,

No. 53 Beale Street, between Market and Mission,
SAN FRANCISCO.



FILES of every description made and re-cut to order,
JOB GRINDING of all kinds done at short notice. A
complete assortment of New Files constantly on hand.
Reaper and Mower Sections, Bars, etc., made to order.
All work warranted. Orders from the country promptly
attended to. No Chinese employed. 1618-5m

ROSS & HARVEY, Proprietors.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

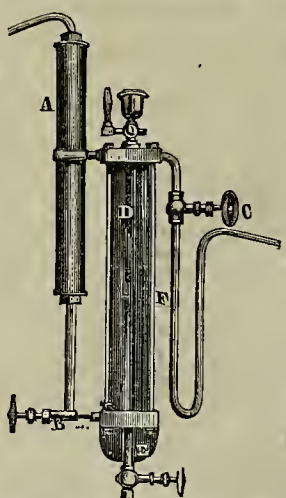
and 131 Beale street, between Mission and Howard

San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.

DESCRIPTION:—D, is a glass chamber which contains
the lubricant. C, is a valve and cup for introducing the
lubricant into chamber D. P, is the discharge pipe for the
lubricant, provided with an inverted syphon to prevent
steam from coming back from the steam chest or steam
cylinder into the instrument. E, a waste pipe and valve for
drawing waste water from the oil chamber before re-charge-
ing the same. B, a valve and pipe to introduce water under
the lubricant for the purpose of expelling the same; this
pipe is connected to the boiler or steam pipe therefrom. A,
is a steam condensing pipe or vessel, to provide a full supply
of clean and pure water for the ejection of the lubricant
from the oil chamber; the rapidity of action being regulated
by the valves B and G. 1618-5m

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works.

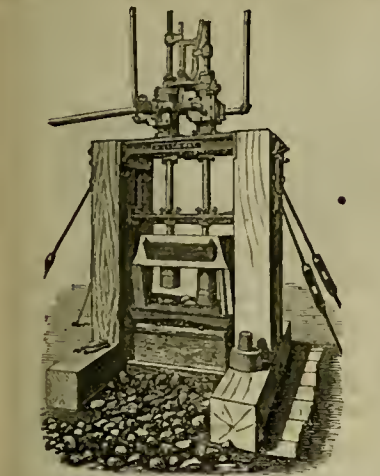
655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles
of Gold. 20v21-4f

THE WILSON

Patent Steam Stamp Mill



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that this

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.
Or of **THE WILSON STEAM STAMP MILL CO.,** 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.
F. R. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.



YALE LOCKS.
FULL SIZE OF KEY.
BEST & CHEAPEST.
FOR SALE BY THE
HARDWARE TRADE.
YALE LOCK M. F. G. CO., N. Y.
Simplicity, Security, Convenience of Key.
Rim and Mortise Night Latches.
FINE STORE DOOR, CLOSET, CHEST, DESK AND DRAWER LOCKS,
POST OFFICE LOOK-BOXES,
CAST BRASS FRONTS, GLASS DOORS,
PRISON LOOKS,
UNPICKABLE BANK AND SAFE LOCKS.

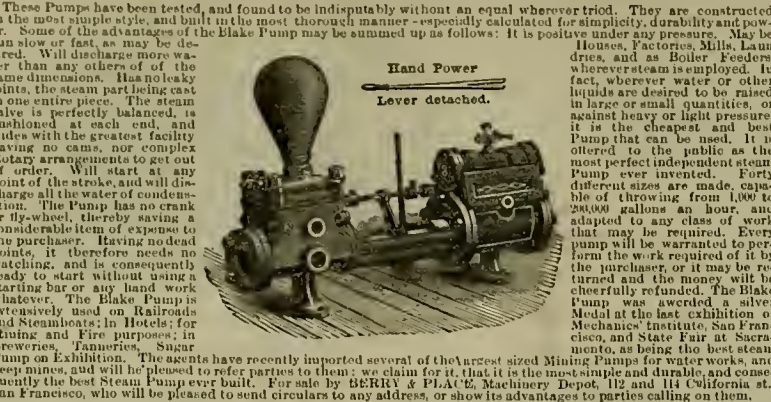
Pacific Agency.
OSCAR V. GERZABEK, 503 Market Street,
Box 1051, San Francisco.
Commission Merchant and Manufacturers Agent of
GENERAL HARDWARE,
Table and Pocket Cutlery, Eng. and Am. Files Saws &c.
VARNISHES AND JAPANS.
N. B. Send for circular and price list. Lower than the lowest.
24v21-3m

TRAVIS & WAGNER!



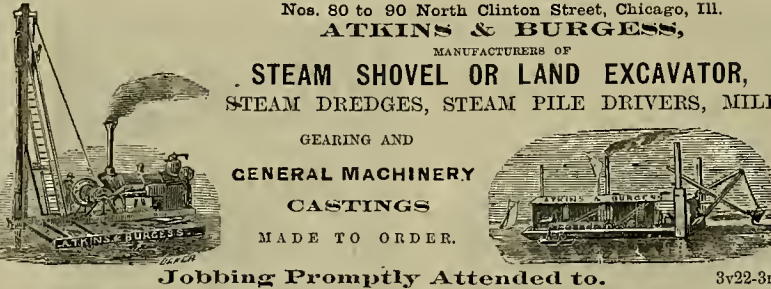
The Stetefeldt Furnace.
For information of any description respecting this process,
APPLY TO
STETEFELDT FURNACE COMPANY.
Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

BLAKE'S PATENT STEAM PUMP.



These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and consequently the best Steam Pump ever built. For sale by **BERRY & PLACE**, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

VULCAN IRON WORKS.



N. P. Langland,
STAIR BUILDER,
485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

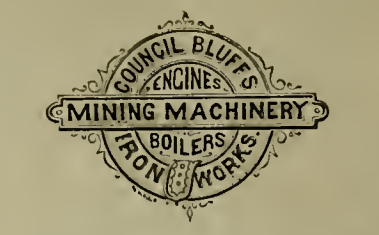
Varney's Patent Amalgamator.
These Machines Stand Unrivaled.
For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.
This Amalgamator Operates as Follows.
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.
Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.
Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.



SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

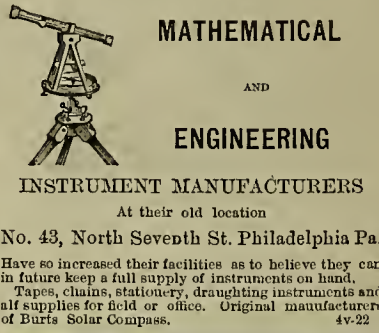
McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco
2v21-1f

Eastern Advertisements.



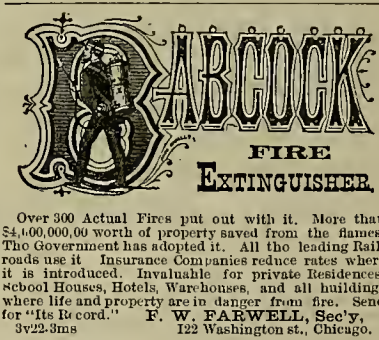
Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any shoe before introduced.
Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily the work of ten stamps with one quarter the power.
Stamp Mills with all late Improvements.
Send for prices and information. Address
C. F. HENDRIE, Prest, R. J. CORY, Secy & Treas.
1v22-3m Counci Bluffs Iowa.
[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,
Successors to
WM. J. YOUNG & CO., **WM. J. YOUNG & SON,**
WM. J. YOUNG.



MATHEMATICAL
AND
ENGINEERING
INSTRUMENT MANUFACTURERS
At their old location
No. 43, North Seventh St. Philadelphia Pa.
Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand. Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burt's Solar Compass. 4v-22

PAPER-BOATS.
Have been rowed by the winners of NINE races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give
A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada,
besides much other information of interest to oarsmen. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address
WATERS, BALGH & CO,
23v24-3m 303 River Street, Troy, N. Y.



LEONARD'S
Patent Vapor Jet Burner and Hand Lamps.
Also, Portable Gas Burners and FIXTURES.
County and State Rights for sale.
Send for Circulars.
Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.
3v22-3m

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTURER,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Withmar Glass and Queensware Company.
IMPORTERS, MANUFACTURERS AND DEALERS IN
China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

DEWEY & CO.,
U. S. AND FOREIGN
Patent Solicitors and Counsellors.
Principal Patent Agency for the
PACIFIC STATES.

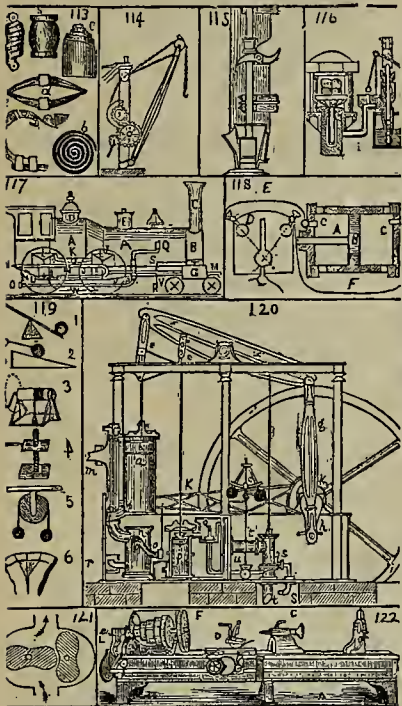


Plate V of Illustrated Mechanical Movements, described in Dewey & Co's. 48 page circular of Information for Inventors. Sent post paid on receipt of postage stamp.

OFFICE OF THE SCIENTIFIC PRESS,
(Established 1850.)
AND THE PACIFIC RURAL PRESS.

Patents for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense if old, by giving you honest and intelligent advice.

DEWEY & CO.,
Patent Agents, No. 414 Clay st., San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

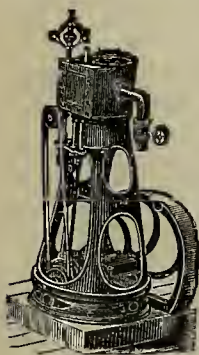
San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf



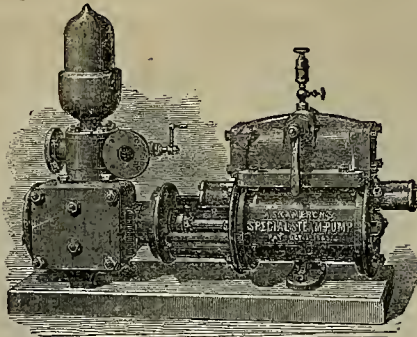
RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-ly16p

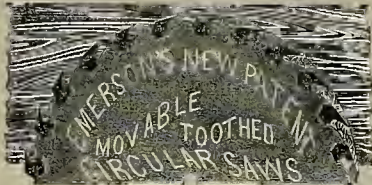
PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
25 Bond street, New York.
Platinum Scrap and Ore purchased. 5v20-ly16p

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.



Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS

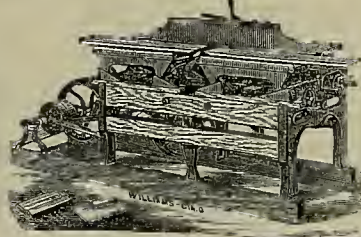
Of J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.
Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both Hubbard Bro. & Co. and Lippencott & Co.
Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

Improved Universal Wood Worker



FOR

Jointing, Babbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mail-6m

Pacific
Insurance Company
No. 422 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers



OF THE Per cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel,

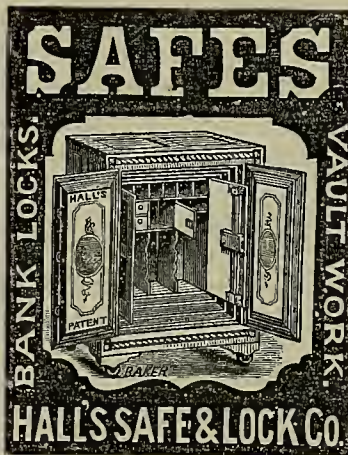
MILL GEARING AND SHAFTING

Of all Descriptions, and General Mill Furnishing.

Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular. mail-6m



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1848.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.

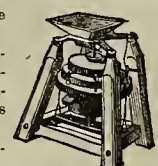
Send for Catalogue and Prices. mail-6m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone Complete for \$1,200.

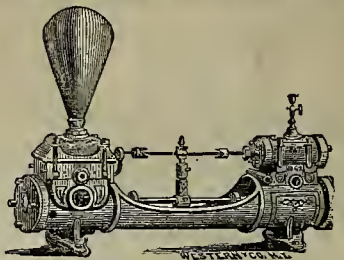
FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smutters, Corn Shellers, Flour Packers, Hominy Mills, Belting, Picks and Mill Work generally.

SEND FOR DESCRIPTIVE PAMPHLET. mail-3m



ISAAC STRAUB & CO.,
Cincinnati, Ohio.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qel6p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS.

Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garrett's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

MAGAZINES.	P. An.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansome and
New York Ledger.....		Washington streets,
Blackwood.....	3 00	SUPPLIES ALL
Hours at Home.....		Eastern Periodicals,
Good Words.....		BY THE
Peterson's.....	5 00	Year, Month, or Number.
Arthur.....		
Lady's Friend.....		
Harper's Weekly.....	6 00	
Chimney Corner.....		
Literary Album.....		
London Society.....	15 00	
All the Year Round.....		
London Ill. News.....		

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY **DAVID R. SMITH,**
Civil and Mechanical Engineer,

519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-16p

O. J. KING, B. KIMBALL, F. D. ODE,
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco, [16p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

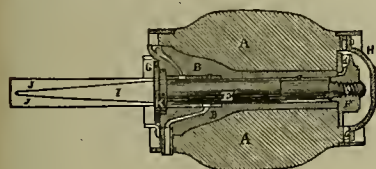
SAN FRANCISCO, SATURDAY, MARCH 18, 1871.

VOLUME XXII.
Number 11.

Improvement in Hubs and Axles.

Mr. C. R. Donner, of Sonora, has invented an improved wagon-axle, by means of which wheels can be made to last a long time without running loose, and by which the end motion can be taken up when it becomes too great. The construction will be easily understood from the accompanying illustration and description.

The hub, *A*, contains an axle-box, *B*, within which the axle turns. This box is provided with an oil-cup or opening, *C*, (one for small wagons, or two, as here shown, for large ones) and passages from this open at various points within the box so as to thoroughly lubricate the spindle, *E*. Within the box, *B*, near each end, are two steel supplementary boxes, *a, a*, which the spindle bears in as it turns, and which



are also pierced with holes for lubricating.

The nut, *F*, which serves to retain the wheel in place on the spindle, has a sleeve which extends inward and rests against the shoulder at the end of the spindle. The threads of the screw, *c*, are cut only in the outer part of the nut, the shoulder not being provided with threads, so that when the parts wear and allow too much end motion, the end of the sleeve, *F*, can be filed off, allowing the nut to be turned up closer, thus compensating for the wear. An oil-cup, *d*, may also be provided for the nut.

The cover, *G*, on the inner end of the wheel, protects the moving parts from dirt; and the cap, *H*, at the outer end, fits over the nut, *F*, being secured with lugs and a spring catch. The spindle may be made of steel and is drawn out to a wedge-shape, as shown at *I*, and has a double collar, as at *K*. The iron portion of the axle, *J*, clasps this wedge and is welded so as to extend under the collar, making a strong joint which requires very little labor on the part of the blacksmith.

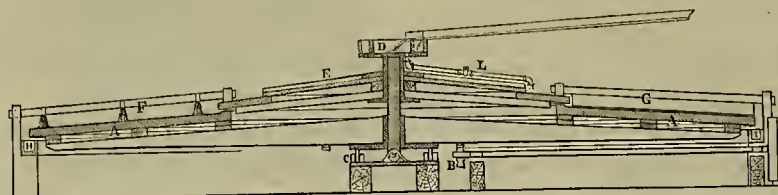
A patent for this useful invention was granted last month, through the SCIENTIFIC PRESS Patent Agency, to Mr. Carlos R. Donner, of Sonora, Tuolumne Co., who may be addressed for further information. The patentee stands ready to prove the value of his device from actual working, and more than this cannot be required.

DARIEN CANAL.—Commodore Selfridge is quite sanguine that he has found a practical route for the canal. From Atrato to the Cacarica, where ships can go, the distance is less than fifty miles. The watershed is not over 300 feet high, and its base, at a height of 170 feet (?) not over a mile and a half wide. The rock is soft and easily worked.

Ore-Concentrator.

Grass Valley is quite noted for the many useful mining inventions which it has produced. Most favorably situated with regard to mines, having an industrious and intelligent population, it has been able not only to do its own work but also to help on others by its practical inventive talent. A good specimen of what it can do, and has done, is given in the invention which is here illustrated. This relates to ore concentration, a matter which cannot but become more and more important as our country grows older.

The concentrator consists of a circular inclined table, *A*, which rests upon friction rollers, *C*, and is revolved by suitable gearing, *B*. The pulp is conveyed into a box or hopper, *D*, whence it passes upon the upper stationary table, *E*. On this table are arranged radiating wooden strips, which serve to distribute the pulp evenly over the whole surface of the lower revolving table, *A*. Into the hopper water can be introduced in any required amount to di-



THE RAWLINS & STEPHENS ORE CONCENTRATOR.

lute the pulp, and cause it to move freely.

As the pulp falls on the table, *A*, it is carried around under brushes, *F*, suspended, at proper points, from fixed arms by means of flexible straps, so as to evenly spread the pulp over the table surface, and by keeping it agitated, allow the gangue or tailings to be washed down into the circular trough, *H*, which is placed around the outside rim of the table.

The ore or metal settles, in virtue of its specific gravity, upon the table and is carried around until it comes to a scraper, *G*, which is hinged to a stationary arm and rests upon the surface of the table in such a way as to collect the valuable material in a ridge, while a stream of water from the pipe, *L*, washes it off into the trough, *I*, whence it may be conveyed to any desirable point.

It will thus be seen that the table works continuously and requires but little attention. One person can attend to a number of tables, about all that is necessary being to have a general oversight in order to regulate the amount of water as may be required. The construction of the table is simple and but little power is required to move them; the expense of putting them up and running them is consequently small, and will be paid with heavy interest in the saving which they effect.

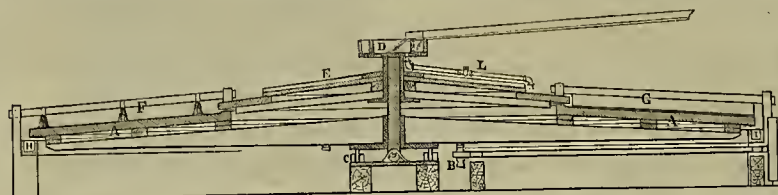
We have no precise data with regard to the operations of the tables, which, we are told, will work as much as 30 tons daily. They have been in use at Grass Valley and at the Meadow Valley company's mill at

Pioche City, Nevada, where they have given excellent satisfaction, with both silver and gold ores.

A patent was obtained, in July, 1869, for the United States, and subsequently one was taken out in England, through the SCIENTIFIC PRESS Patent Agency, by the inventors, Messrs. Rawlins and Stephens, of Grass Valley. Mr. C. C. Perkins has obtained an interest in the patent right, and parties desiring further information may address him at Hamilton, Nevada, or may apply to Barnum W. Field, Pioche City, Nevada. Patterns for the castings may be found at the Union Foundry in this city.

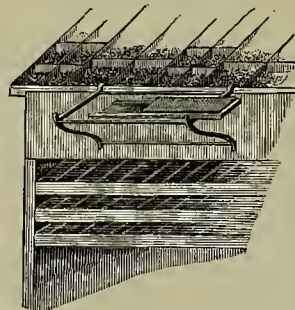
A Proof-Galley Rack.

We illustrate below a simple device which, we believe, will be found exceedingly useful to the compositor. This is a proof-galley rack, which is adjustable to any case, without the slightest trouble and which is shown in the engraving attached to a case, and with a galley placed



upon it. (One end of the galley is broken in the cut, to show the construction better).

When a printer corrects his proof, he is now obliged to place the galley on the case, thereby covering up a number of the boxes, and thus interfering materially with his work. With this device no boxes are covered, the case is not wet, and a



really considerable amount of time is saved.

This device is the invention of a practical printer, who ought to know what will be of use. The patentee is Mr. H. H. Gale, one of the publishers of the Roseburg *Ensign*, a copy of which now before us, impresses us very favorably with regard to its merits. We recommend printers to try the galley-rack, addressing for particulars Gale & Brother, publishers *Ensign*, Douglas, Roseburg County, Oregon.

San Francisco Gold Diggings.

That San Francisco is built on gold, consists of gold, is no new idea. But the plan of digging over North Beach with pen-knives and washing the top sand in wash-bowls has not been tried for so long a time, that we feel justified in pronouncing the late discovery novel and unprecedented in the annals of barbarian history.

At the end of last week this city was startled with the news that pure gold was lying in untold amounts on the surface of the sand hill behind Selby's smelting works. There was a rush thither and an eager delving. Visions of sudden wealth were assisted by tales of wondrous success, and it is strange that there was not a greater exodus from the business streets. How painful were the pangs which undoubtedly seized Mr. Selby at having neglected the rich natural resources lying at his very door, we do not know; and what visions of an immensely increased home circulation may have flashed through the brains of the proprietors of the SCIENTIFIC PRESS, are equally unknown to the editors. They were only painfully aware that their duties prevented more than brief visits to the scene of operations.

Whether the gold was so fine that the winds wafted it from the hands of the busy seekers, or whether the climatic conditions were unfavorable to a stay, we do not pretend to say. At our last visit, on Thursday, however, only nine persons were at work. One pan, one pail, a piece of tin, three pen-knives, three sticks and one flat stone, were all the implements then used by the gold seekers, who seemed weary of their toil, but yet worked on, sitting, lying flat on their stomachs, or assuming the position taken by the pupils of Socrates (according to an ancient writer) when studying astronomy.

We have brought home, in our shoes, large samples which have been subjected to the most scientific processes capable of being performed in a wash-bowl. We are not quite prepared to give the exact results as yet. A sudden change in the editorial staff of the Press may be looked on by our readers as an indication that "something's up." Otherwise, we advise them to refrain from investing heavily in the San Francisco placers.

COAL FORMATION.—C. Widemann writes to the *Jour. of Applied Chemistry* that, in France, in taking down a saw mill where a vertical saw had worked between two solid oak boards for fifteen years, the wood was found changed into coal, possessing brilliant scales and sharp edges. The appearance of the oak grain was only visible by the aid of a powerful microscope, assuming the appearance of very thin layers. It had been noticed that, when the attendant had neglected to oil the saw, the sheet iron became so warm as to come to the blue color (about 300° C.), the heat of the wood at the same time being about half as much. This occurred not oftener than once a month. It was expected to find charred wood, but not coal.

MECHANICAL PROGRESS.

STEAM DREDGING MACHINERY.—The following is a description, from an exchange, of the dredges now hulling in Chicago, for use in the cutting of a ship canal six miles long and 160 feet wide, from New Orleans to Lake Borgne, thence communicating with the Gulf of Mexico: "On a strong frame of oak and iron are secured two 52 horse-power engines. These handle a dipper weighing two tons, with a beam or handle long enough and strong enough to operate in water 25 feet deep. There are four of these frames, each with its two engines, and its dipper. Each with its appliances, weighs 40 tons. These require the use of two strong hoats, sufficiently capacious to sustain two of these machines, with the fuel, etc., requisite to keep the machinery in operation. The machinery of these boats is the same, with a single exception, that is, in the construction of the dippers. Those of the pioneer hoat are armed with cutters, teeth and hooks of steel. The ponderous dipper is thrust against the bottom by means of one part of the machinery, and then raised by another. The cutters, teeth, and hooks cut and tear up roots and timber, and deposit them beyond the banks of the canal. Both dippers are operated at the same time, and thus they excavate, as they advance, the full width of the canal, depositing trees, roots, rocks, and earth beyond its banks. The second hoat has plain dippers of the best construction for the removal of earth and mud. It is presumed that the first or pioneer machinery has cleared the canal of all formidable obstacles. The work of the second is to deepen and finish the channel ready for the passage of steamers of every size and kind, or even of national ships of the largest class. The dredges will operate in water from two feet deep to any depth necessary to float a ship. They will cut through and remove everything—roots, earth, and boulders weighing tons. Nothing but a solid ledge of rock can stop them. The cost of the dredges is \$44,000."

JOLIET ROLLING MILLS.—The Chicago *Railway Review* says of the new works in Joliet, Illinois,—at the center of the entire railway system of the East, West, and South: "The mills began running about four months ago; and it speaks well for the character of the enterprise that, during a very dull manufacturing season, in which many mills have been compelled to temporarily cease running, the orders upon it have necessitated the working of the force of 350 men one turn a day. The capacity of the mill is 250,000 tons of rails per year. Rails of any size or pattern are made. The Chicago Iron Co's furnace, from which the pig is obtained, have a capacity of 400 tons per week. The company have nearly perfected plans for Bessemer steel works on their grounds at Joliet. It is expected to begin building in the spring, and to have the work in operation in the fall, at a cost of from \$200,000 to \$300,000."

BALANCED SLIDE VALVE FOR LOCOMOTIVES.—A paper was read before the London Institution of Mechanical Engineers, by Mr. Wm. Beattie, at a recent meeting, giving a description of a new valve as follows: "This slide-valve is similar in shape to the old D valve, being made cylindrical at the back, and working inside a jacket of corresponding form fixed in the steam-chest; the steam pressure is excluded from the back of the valve by two steam-tight packing rings, one at each end, which are fitted into grooves in the body of the valve, and are pressed outwards against the jacket by means of spiral springs. The valve is thus relieved of the heavy pressure of steam, which in ordinary slide valves forces the valve against the cylinder face with a pressure that amounts in large engines to as much as nine or ten tons. The result has been found by experiment to be that the balanced slide-valves, which are made of cast iron, require only about one-third of the power to move them that is necessary with the ordinary unbalanced valves made of brass. The excessive wear and tear, to which the ordinary valves and the link-motion working them are subjected, is thus avoided; there is also an important advantage in the facility with which the engine can be reversed with steam on. The economy of fuel, consequent upon the saving in the power required, has been found by experience to amount to 2½ pounds of coal per mile run."

THE NEW RANSOME STONE.—Of this *Engineering* says: "Mr. Ransome makes a mixture of sand, Portland cement, ground carbonate of lime, and some silica readily soluble in caustic soda at ordinary temperatures, and these materials he makes into a plastic mass by the addition of silicate of soda. The mass thus formed remains plastic a sufficient length of time to allow of its being rammed readily into moulds of any desired form; but it gradually hardens, and ultimately becomes thoroughly indurated and converted, without any further treatment, into a hard stone capable of resisting heat and cold, perfectly impermeable to moisture, and which, as far as can be judged from the experience hitherto obtained, goes on increasing in hardness, and bids fair to be thoroughly durable. * * * By his new process Mr. Ransome is enabled to produce admirable artificial marbles, while by introducing amongst the materials fragments of quartz and a small proportion of oxide of iron, he obtains a stone of rich color, hardly distinguishable from Peterhead granite. Like the natural granites and marbles, the artificial substitutes are capable of taking an excellent polish, while they possess the great advantage over the natural products of being capable of being molded in the course of manufacture into any form at a trifling cost. It would be idle for us to attempt here to enumerate the uses to which the new stone can be applied, for they are practically numberless. For decorative purposes it will be invaluable, and Mr. Ransome deserves the best thanks of architects, and we may add of engineers."

FIBROUS VS. GRANULAR IRON.—The following is an extract from a paper recently read before the American Society of Civil Engineers, by J. Dutton Steele: "Some years since, an experiment was made under my observation bearing upon this point: Rails made of fibrous and granular iron were laid alternately upon a heavy freight-bearing road; at the end of six months, the fibrous heads showed the most marks of wear; at the end of twelve months, the granular heads began to break up; and the result was that the soft, fibrous rail wore out two of the granular. In the early railroad experience, a patent was taken out in England for making the heads of rails of granular iron, and at least two patents have since been taken out in this country for the same object, but all with the same result—all have passed into oblivion under the test of practice. There are several problems in the wear of rails which may be worthy of note. We all remember what a run the double-headed rail had in England, and how signal has been its failure; the first head subjected to the action of the wheels became granulated, and its tensile strength destroyed, so that when the rails were inverted they broke. True to the same principle, we find that any cause which changes the position of rails in the tracks, so as to alter the bearing of the wheels upon them, causes their destruction. If they are reversed side for side to the flanges, they wear out quickly, and even if they are taken up from one point in the road and laid down in another, by which means the bearing of the wheels upon them is, of necessity, more or less changed, the granulated surface is broken up, and their durability is decreased."

TRANSFER OF CARS FROM ONE GAUGE TO ANOTHER.—A correspondent writes thus to *Van Nostrand's Engineering Magazine*: "All, or nearly all freight cars have a stout timber or plank crossing under the body of the car, over the center of each truck, and projecting an inch or two beyond each side of the car, thus forming four points upon which a loaded car may rest without injury, independent of the trucks. Upon these same planks are placed three castings, namely the pivot and two side bearings. What I propose is, to have a lifting apparatus, with most of its working parts in a pit under the track, to lift a loaded car bodily off the trucks by the four points above mentioned, run out the trucks of one gauge, and run in trucks of another gauge, and let the car down upon them. The pivots, side bearings, and brake chains would have to be of uniform pattern; but in other respects all the existing variety of cars and trucks could be used, and every road would keep its *running gear upon its own road*. A 10-horse engine would furnish power to transfer several hundred cars in a day, with switch engines to move them."

A HAND SEWING MACHINE.—We see described a little lock-stitch sewing machine, to be held in one hand, and worked like a pair of scissors, making a stitch for each stroke.

SCIENTIFIC PROGRESS.

INFLUENCE OF THE SOLAR HEAT ON THE EARTH'S ROTATION.—Capt. John Ericsson has an article on this subject in *Engineering* for Feb. 10th, in which he disputes the heretofore accepted theory of Laplace, that the axial rotation of the earth is not affected by atmospheric currents and similar motions caused by solar heat, since their final result is the balancing and counteracting of each other. We have not space for his demonstration, but we quote a paragraph to show what he proposes to demonstrate:—"There are two classes of force produced by solar heat, capable of retarding the axial rotation, differing, however, entirely as regards ultimate results. The first class includes animate exertion, mechanical force produced by heat developed by the combustion of organic substances, and the resistance of abraded solid matter transferred from its original position by the waters of rivers flowing towards the equator. The forces thus enumerated, it will be shown, retard the rotary velocity of the globe in all cases when they remove weight to a greater distance from the axis of rotation, i. e., expand the circle of gyration, thereby diminishing the number of revolutions performed in a given time. Obviously the vis viva of the rotating mass will remain undiminished, as the center of gyration is merely removed to a greater distance from the axis of rotation. Accordingly, the axial rotation, though checked can never be stopped by the class of retarding influences thus pointed out. The second class, however, which comprises the retardation produced by the atmospheric air during its course from the polar to the equatorial regions; and the retardation caused by the waters which flow towards the equator to restore the quantity lost by the powerful evaporation within the tropics, not only diminishes the rotary velocity hut, at the same time, deprives the earth of so great an amount of vis viva, that the axial rotation must ultimately cease, unless some exterior compensating force exists, a supposition at variance with the principles of mechanics."

PETROGRAPHY.—Arch. Geikie, in reviewing a new contribution to German petrographical literature, by Dr. F. Senft, remarks that the study of rock-species has in England been allowed to fall into disuse, although the most important step in modern petrography there originated, viz., the application of the microscope to it by Mr. Sorby. In Germany, however, it is cultivated with assiduity. We quote: "The great paper of Mr. Sorby, published here thirteen years ago, has done much to quicken this research by showing that the older methods were in many respects untrustworthy. These methods were based primarily upon chemical analysis. But such analysis, while it reveals the ultimate chemical constitution of the rock, may not explain its mineralogical composition. The various stages of the metamorphism of the component minerals are thereby often lost sight of. Hence two rocks, having by analysis approximately the same chemical composition, may differ materially from each other in mineralogical composition. It is here that, as Sorby showed, the microscope comes in to our aid, and shows what the different mineral ingredients of the rock are, how far they have respectively undergone alteration, how they are built into each other so as to form the rock mass, and under what conditions they may originally have been formed. This important addition to the methods of research has so powerfully affected petrography, that this branch of science must be regarded as at present in a transition state. Many of the groups of rocks in the nomenclature now in vogue in Germany will require reconsideration. More especially is revision needed in those based upon subdivisions of the triclinic feldspars. Petrographers are now coming to see that, in a vast number of cases, it is not possible to discriminate the particular species of feldspar in a rock, further than as belonging to the orthoclase or plagioclase division. In this separation the microscope becomes of essential importance."

NEW METHOD OF FINDING THE RESISTANCE OF A GALVANOMETER COIL.—Sir W. Thomson recently read before the Royal Society a paper entitled "A modification of Wheatstone's bridge to find the resistance of a galvanometer coil from a single deflection of its own needle." We quote from it as reported in *Nature*, Feb 2d: "In any useful arrangement in which a galvanometer and a galvanic element or battery are connected through whatever trains or network of conductors, let the galvanometer and battery be interchanged. Another arrangement is obtained which will probably be useful for a very different, although reciprocally related, object. Hence, as soon as I learned from Mr. Mance his admirable method of measuring the internal resistance of a galvanic element (that described in the first of his two preceding papers), it occurred to me that the reciprocal arrangement would afford a means of finding the resistance of a galvanometer coil, from a single deflection of its own needle by a galvanic element of unknown resistance. The resulting method proves to be of such extreme simplicity that it would be incredible that it had not occurred to anyone before, were it not that I fail to find any trace of it published in books or papers, and that personal inquiries of the best informed electricians of this country have shown that in this country at least it is a novelty. It consists simply in making the galvanometer coil one of the four conductors of a Wheatstone's bridge, and adjusting, as usual, to get the zero of current when the bridge contact is made; with only this change of plans, that the test of zero is not by a galvanometer in the bridge itself showing no deflection; but by the galvanometer, the resistance of whose coil is to be measured, showing an unchanged deflection."

REPORT ON THE WASHOE REGION.—In a notice of the 3rd volume of the Report of the Fortieth Parallel Geological Exploration, *Silliman's Journal* for March says:—"It is not too much to say that the descriptions of the Washoe region, and the illustrative maps showing the geology and topography of the Comstock lode by Messrs. King and Gardner, with the maps, sections and elevations of the different parts of the mines and workings, surpass in completeness and perfection of execution, any similar work ever published. The chapters by Mr. James D. Hague on the methods of exploitation and treatment of the ores of the different districts give, in a masterly manner, the facts and details on these points, and also contain a large amount of carefully collated statistics, never before published, regarding the cost of production, and the yield of the mines up to 1870. Mr. Hague's practical experience in mining, and his thorough knowledge of the scientific principles involved, together with his candid and discriminating treatment of the facts under consideration, give great weight to his conclusions, and render this volume the most valuable contribution yet made to the literature of the Mining Industry of the United States."

WYOMING FOSSILS.—Prof. O. C. Marsh gives in *Silliman's Journal* for March an outline of one of the expeditions made by the Yale Scientific party during the past season. Of the region about the "Grizzly Buttes," on the route from Fort Bridger to the Green River, a region resembling the "Mauvaises Terres," of Nebraska and Dakota, he says:—"A careful examination of this 'Bad Land' district soon indicated that a fossil, vertebrate fauna of peculiar interest was here entombed; one apparently older and quite distinct from that preserved in the great Miocene lake-basin east of the Rocky Mountains, which we had recently explored. In the latter deposit, the remains of ruminating mammals were especially numerous, while the entire absence of fishes, and of reptiles, with the exception of a single species of tortoise, was a well marked feature. Here, however, reptilian life had evidently been abundant, and was represented by all its principal forms. Crocodilians, tortoises, lizards, serpents and fishes had swarmed in the waters of this tropical lake; while Tapiroid mammals, with many smaller quadrupeds, had lived near its borders. Their remains had long been weathering out of the "Grizzly Buttes," which offered so inviting a field, that we devoted a fortnight to their exploration, and were rewarded by the discovery of a large number of extinct vertebrates new to science, which will be described by the writer at an early day."

CORRESPONDENCE.

Notes of Travel in Calaveras County.

[Written for the Press.]

Murphy's Camp and Vicinity.

One of the most important institutions of a mining section is its water privileges. The Union Water Company, office situated at Murphy's, is presided over by Mr. J. C. Scribner, of Angels, and Alonzo Rhodes, of Murphy's, is Secretary. They have two main canals, or ditches, receiving their supply of water from the north and middle forks of the Stanislaus river, about 50 miles above Murphy's. The aggregate length of the two ditches is 60 miles. They originally cost over \$250,000; their receipts for the sale of water for mining and agricultural purposes average from \$30,000 to \$40,000 per annum.

Washington District Quartz Mines.

The Ferguson & Wallace claim, $6\frac{1}{2}$ miles north from Murphy's, is owned by the two gentlemen after whom it is named. They own 1,400 feet of a ledge, from 8 to 20 inches wide. They are running two adartras by water-power, working 5 men. Their rock thus far has averaged from \$34 to \$44 per ton. They have just completed a drainage tunnel, 236 feet in length, at a cost of from \$10 to \$40 per foot. The rock is hoisted by a whim, run by horse-power, through a shaft 94 feet deep. The Mountain Quail claim, $2\frac{1}{2}$ miles from the above, is owned by Mr. Samuel Woods. He has 1,100 feet of a 20-inch vein, which is much broken. It has, I am informed, never paid less than \$75 per ton. He is running two adartras by water-power, employing 3 men, working through a shaft by a windlass.

One mile from the above, a San Francisco company are now engaged working three different ledges, known as the South Bank, Enchantress, and Oro Mita. On the latter a shaft has been sunk 130 feet, one 110 feet deep has been sunk on the Enchantress. On the South Bank, a shaft 12 feet deep, reveals a well-defined ledge, 8 feet thick. The few tons of rock crushed from the above named ledges, have averaged from \$20 per ton up in the thousands, for small lots. Neiswander, Jaquith, Parsons and others are the lucky proprietors.

Texas—Union—Angels.

The Texas claim, two miles below Murphy's, is a deep diggings, ancient river claim, owned by Thomas Cox, John and Joseph Manuel, Ira Thomas and Richard Evans. They work through a shaft 150 feet deep, employing 10 men regularly, (at times 20). It pays them a fair remuneration, and has for years back.

The Union Quartz (better known as the Stickle's) mine, is situated in the suburbs of Angel's Camp, 6 miles below Murphy's. It is owned by Geo. Stickle & Co. (7 others), who have 400 feet of a ledge from 16 to 25 feet thick. The mine is worked through a vertical shaft, 240 feet deep. They are running a 10-stamp mill by water-power, crushing daily from 8 to 10 tons of rock (running nights only). Their rock will average about \$8 per ton; it is highly sulphuretted, and the sulphurets are quite rich; but they have no way of working them up just now. Ten men are regularly employed on this claim.

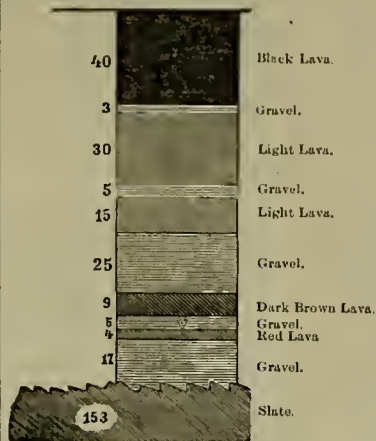
The Angels quartz mine, near Angels, is owned by a joint stock company, principally a San Francisco. H. B. Potter is Superintendent. This company claim 900 feet of a ledge averaging 14 feet in width, but varying from 6 to 30 feet. They have two shafts down on the lead, 100 feet apart, on an incline of 70 degrees. The principal one is 400 feet deep. They have a very complete mill of 30 stamps run by an 80-horse power engine, and hoisting works with an engine of 25-horse power. They are crushing daily (24 hours) 45 tons of rock, which averages about \$8 per ton, and reducing about two tons of sulphurets daily, which average \$75 per ton. The water in the mine is raised by two of Blake's steam pumps, one situated on the 200-foot and the other on the 400-foot level. They regularly employ 60 men. A novel device for an amalgamator, invented by Dr. Hill, of this place, is in use here, (caveat filed upon the same.) The peculiarity of the device is, that it rotates and the millers are stationary.

Several Skulls

Of human beings at different times have been unearthed in this county, at a depth that has puzzled some of your geologists to tell in what age they lived, moved and had their being. So I have obtained a

diagram of the shaft, together with a photograph of the skull that was taken out of a shaft near Altaville, some few years since, at a depth of 132 feet, in a bed of pay gravel, beneath seven other stratas. Small particles of gold were found in the skull, and petrified wood of different kinds near the same.

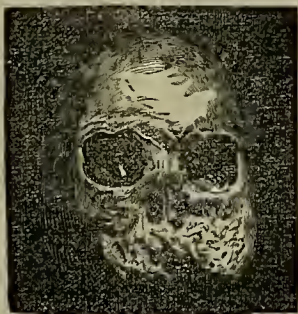
[We give the cuts exactly as we have received them. Any comments are in order.—Eds.]



Altaville is situated some two miles from Angels in the direction of San Andreas—once a very thriving village. D. D. Demorest, at this place, is driving a very fine business in the line of a machine shop and foundry.

Thorp's—Indian Ravine.

Thorp's mine, three-quarters of a mile from 4th Crossing and about five miles from San Andreas, is just coming into notice. It is owned by Capt. M. Thorp & Sons, who claim 1,000 feet of a ledge that



averages four feet in width, (i. e. the principal vein.) It has three spurs, possibly three different veins. They have an incline shaft down on the ledge 65 feet deep, on an angle of 45 degrees. With three adartras and two stamps they have been crushing about five or six tons per day. They have just completed a five-stamp mill, and now expect to crush eight tons daily. Their rock averages about \$6 per ton, running as high as \$10. As it has heretofore paid them fair wages, and now looks better, the probability is that some good report will be heralded from this mine ere long.

The Indian Ravine Tunnel Claim,

One mile south-west of Chili Gulch, is owned by J. T. Carr, of San Francisco. A. W. Holbrook is Superintendent. Now 25 men are working night and day. This is a blue gravel deep channel claim, 1,200 feet in length, worked through a tunnel 2,800 feet long. The pay gravel is about 60 feet wide and 6 feet deep. It is brought by car to the dump, at the mouth of the tunnel, and washed by hydraulic process. The pay averages about \$1 per car load, and 150 car loads are taken out daily (24 hours). The tunnel cost \$28,000 to construct. Air is forced into this tunnel by a fall of water arranged at the mouth of the same, 70 feet high, falling through a pipe into a tub, with another tub (inverted) of less diameter over the same, so arranged as to let the water escape but not the air. From this upper tube the air is conducted into the tunnel by a pipe. Simple but very complete.

Gwin—Alexander.

The Gwin mine is situated 5 miles south-west of Mokelumne Hill on lower rich gulch, on the Hayward lead. Gwin & Coleman are proprietors. Wm. M. Gwin is Superintendent. This claim is 2,800 feet long and averages 10 feet thick. They are working through a shaft 400 feet deep on an incline of about 60°, employing 50 men, running two mills, one of 20, and the other 16 stamps. Only 93 inches of water are required to run both mills. It is ac-

complished by conducting the water to a 7-foot hurdy gurdy wheel at each mill, through an hydraulic pipe under a 280-foot pressure. They crush daily (24 hours) 65 tons of rock, that averages them \$9 per ton.

The Alexandria mine, next adjoining below, is owned by J. H. Alexander & Co. They own 1,000 feet of a similar ledge, that averages 10 feet in width, are working 12 men, and running a 10-stamp mill, using only 18 inches of water to run a similar wheel as that mentioned at the Gwin mine, but under a 840-foot pressure. They have a shaft down 200 feet, and crush daily about 12 tons of rock that averages from \$7 per ton upwards. L. P. MC.

[To be Continued.]

The Largest Safe-Manufactory.

[Written for the Press.]

EDS. PRESS.—In wandering about the Eastern realms, I have struck what I believe, is the largest safe-manufactory in the world. This is Hall's Safe and Lock Manufacturing company's works, in Cincinnati, Ohio, where 500 men are employed, and where goods to the aggregate value of \$5,000,000 are turned out annually. A visit to these works will amply repay any one. They have, moreover, branch houses in Chicago, St. Louis, Louisville, Cleveland and New Orleans, and agencies in all the principal cities in the Union. At no distant day, they will probably come out to your coast.

Having heard some pretty strong, what I was at first inclined to think too strong, expressions in praise of their manufactures and of the amount of their business, I hunted them up. I find that they have what I am inclined to think the best safe I have yet examined, one that will prove a decidedly tough nut for any burglar, or for any conflagration. And in regard to their business, although having so extensive works, they are still making enlargements in order to be able to fill their orders.

Mr. Joseph L. Hall is the head of the concern—a gentleman of the greatest practical experience and the highest inventive talent. He has taken out a number of patents and has been unusually successful, and the facts given in favor of his safes and lock are most stubbornly favorable.

Three general classes are made: "fire-proof" safes, for the protection of books and valuable papers from fire; "burglar-proof", constructed entirely of iron and steel, not fire-proof, but intended to be placed in fire-proof vaults for the protection of money and valuables; and "fire and burglar-proof" safes, a combination affording protection against both fire and burglars, in which the burglar part or box is placed within the fire-proof safe.

In the construction of fire-proof safes they use a most superior article, Hall's Patent Concrete, which is said to be a perfect non-conductor, yet free from dampness; which becomes very hard, after being put in place, so as to be difficult to be cut with even a cold-chisel and hammer; and which adds to the strength of the safe. There are over 50,000 of these concrete safes in use in the U. S., and not a single case of failure, I am assured, has ever been recorded.

The burglar-proof safes are constructed on Mr. Hall's dove-tail and tenon and groove principle, which has been proved successful in resisting the most experienced burglar and the best instruments in all attempts to wedge open the doors and safes. These dovetails fit perfectly into each other, and the more the wedge is driven the tighter they become; they are, in fact, a number of wedges resisting the wedge and jack-screw of the burglar, and until their power and tension are exhausted, his implements can have no effect. They are the only party in the United States making this character of safe, and they claim, in this respect, a great and decided superiority over all other burglar-proof safes manufactured.

The lock is another great success, which may be said to be actually impossible to pick. On the lock of six tumblers, over eight hundred billions of changes can be made (so I am told, I haven't calculated them), and on the largest or 12-tumbler lock, an almost infinite number. To try all the combinations of the smallest lock would take a smart man, working night and day, thirty years. Yet a child can operate it with the correct combination.

My letter is pretty long for a description of one factory, but the subject is important and worthy of the attention. I advise you to get a Hall safe. w. n. m.

Using the Microscope.

A correspondent, P. H. H., of Oakland, writes us that he has a microscope, the use of which he does not understand, and requests information on the subject. We handed the letter to Mr. Henry G. Hanks, a leading member of the Microscopical Society. Mr. Hanks may be found at 649 Clay street (the last sentence of his letter requires, perhaps, this statement), where he has a most interesting collection of minerals, fossils, etc., which he kindly allows any one to examine.

EDS. PRESS.—The information your correspondent wishes to obtain cannot be given in a few words. Books with details of microscopic manipulation consist of hundreds of pages. The best works on the subject are: Beale's "How to work with the Microscope;" "The Microscope and its Revelations," by Carpenter; a work by Hogg, with 500 illustrations; also Queckett's "Practical Treatise on the use of the Microscope." These works and many others upon the same subject may be bought at the principal book stores, or examined at the libraries.

A few general directions may be of assistance to him. There are two classes of objects for microscopic observation, one transparent and the other opaque. Each requires a different mode of treatment. It is essential that the former shall be naturally transparent, or that it be made so by being rendered extremely thin so that transmitted light can pass through it. Granite, limestone, fossil wood and even gold may be so examined, if in sufficiently thin sections.

It is sometimes necessary to float the sections in a fluid, to assist in rendering them transparent, such as water, oil, glycerine, or spirits of turpentine, as the case may require.

An illustration of each method of treatment will be the clearest explanation. Suppose the object to be examined to be the wing of a common house fly. It is only necessary to lay it flat on a slip of glass and place it on the stage of the microscope, and so arrange the reflecting mirror beneath that the light is thrown up through the object, causing the field of the instrument to appear sharply illuminated, when seen by looking down through the instrument from above. The focus is then adjusted, and the object will be seen in greater or less perfection according to the perfection of the glasses used. It is customary to use the lowest object glasses first, and then to increase the magnifying power to the extent required.

To examine opaque objects, the reflecting mirror is turned aside, or the diaphragm plate so arranged as to intercept any light that could pass up from below. The light from a good lamp, or from an aperture cut in the window blind, is concentrated upon the object so as to illuminate it strongly. It is then examined as in the first case, always using the lowest powers first. The use of the more refined and improved appliances for illumination would require too long a description for the limited space that you could afford to give in your valuable paper. If your correspondent would call upon me, I could show him in a few minutes what would require pages of your paper to describe; and I would take pleasure in so doing.

A REMARKABLE SPRING.—A correspondent sends to the *Journal of Chemistry* the following account of a remarkable spring in Texas:—

"About sixty miles north of Galena, near the town of Liberty, there is a spring, the water of which is quite acid, simulating lemonade, and those who taste it like it so much that they drink it almost immoderately. When you feel hot it is quite delicious; and under any circumstances, whether hot or cold, the drinking of it produces perspiration, with no unpleasant effects afterward. The spring has no apparent outlet or inlet. It is probably sixty feet across it, and it is covered with a white froth or foam, which on close examination appears like cream tartar on a wine-cask. It kills insects, worms, and other small animals that come near and use it. No fish or other evidence of life is seen within its waters."

DOG POWER.—In Philadelphia there is a small blacksmith's shop, the bellows of which is operated by dogs. The bellows are connected with a wooden wheel box, which is kept revolving by the motion of the dog, something after the manner of a treadmill.—*Iron Age*.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ENCOURAGING.—*Chronicle*, March 4th: A few days since a spur of fair-looking ore, six inches in width, was cut by the tunnel of the Mt. Bullion Co. It is to be hoped that the great Wellington ledge will soon be reached. If this shows good ore in sufficient quantities, the company will erect a mill without delay, and we have reasons for believing that the Schenectady Co. will erect their mill at the same place. The latter company has struck another deposit of rich ore in their Tarshish claim.

HOPE VALLEY.—In this valley the snow is 4½ feet deep. The sole residents this winter are W. Willis and two others who have been working the Crystal Falls claim, on the Ewall ranch. They have sunk a shaft 30 feet, and when they get down 20 feet further they will drift.

GLOBE.—*Miner*, March 4th: The mill has, during the week, been pretty thoroughly tested, and is pronounced a success. The crushers were fed yesterday up to 24 tons a day, and performed well. Ore has been struck in the south drift, which is being taken to the mill.

The *Miner* says the Schenectady has payed enough in sight to keep a 40-stamp mill running for two years.

LUMBER to the amount of several hundred thousand feet and 30,000 bricks have been engaged this week for the Monitor & Northwestern mill.

BUTTE COUNTY.

STRUCK IT RICH.—*Oroville Record*, March 11th: A note informs us that the Spring Valley Mining Co. have struck very rich blue gravel, in the direction of the Blue Gravel Co.'s line, and running under the main table mountain. Everybody feels greatly encouraged.

CHEROKEE CO.—It is stated that this Co. have perfected arrangements for the iron pipe to carry the waters of Butte creek on their claims. The work will be prosecuted to completion during the summer.

CALAVERAS COUNTY.

WHAT CHEER.—*Chronicle*, March 11th: The machinery for pumping and hoisting will be erected at the mine next week. The machinery is on the ground and timber being hauled.

KERN COUNTY.

A *Bulletin* correspondent writes, March 4th, that the Stoddard pump on the Joe Walker mine has been running eight months and has been repacked only six times,—taking 30 minutes each time. The ledge is well developed for a depth of 300 feet, the average width being 9 feet. Test crushings of 100 tons and over have been made thus far—taken from the ledge promiscuously, without any selection, and have yielded \$20 per ton. The cost of mining and milling is \$6 per ton. At the present time 60 men are employed.

MARIPOSA COUNTY.

The *Gazette* of March 10th says that Messrs. Stevens & Lamber have commenced work on the old Whitlock quartz mine. Some 10 or 12 miners were set to work Monday.

NEVADA COUNTY.

NEVADA MINE.—*Gazette*, March 7th: The owners have leased the property to S. Johnson for a term of years. Mr. J. is a practical miner, and will immediately commence repairing and developing the mine. The 12-stamp mill has recently been overhauled and repaired.

COMPLETED.—Same of 9th: The tunnel of Gentry & Co. at Wet Hill, is completed, and is 1,100 feet in length. The company commenced sluicing gravel through it today, using 300 inches of water.

IN LUCK.—Same of 10th: The North Bloomfield Co. are running drifts in their claims to ascertain the course of the bed-rock. They are working 80 men, and are taking out \$1,000 per day. This is only prospecting work.

RICH PAY.—On Relief Hill there are four mines at work. The Wolkenshan Co. in consequence of a scarcity of water, have begun drifting, with the best of results. They have been at work two months, and are taking out \$30 per day to the man. The Eagle is at work with similar results. There are at least 50 men at work on the hill.

EUREKA MINE.—*Grass Valley Union*, 8th: Yesterday was the regular melting day. The product of the mill for the 12 days including Saturday, was put into bars, value \$72,000.

REVIEW.—*Transcript*, March 10th: In Nevada township the Banner, Pittsburg, Orleans, Manhattan, Pennsylvania, and several other quartz ledges are being worked, and the Nevada Quartz Co. is fitting up after remaining unworked for more than three years. The Banner mine is yielding better than for a year, and some very rich rock has recently been worked. The Pittsburg is paying regular dividends and the Pennsylvania is yielding good returns. The Orleans and Manhattan companies have good looking ledges, and are being rapidly developed. Gravel mining is encouraging. The Cement Hill Co. is washing with a good head of water. This is a new enterprise, and after the present run will make their first clean up. Gentry & Co., on Oustomah Hill, have their tunnel and flume completed, and have just received a large Craig's nozzle of the new style. In a day or two this company will commence washing on ground which it has taken over three years to open, and which prospects well. The Manzanita claims are being worked as in years past. Within the past month in the vicinity of Washington, and on Canon creek, a number of locations have been made. At Omega the miners are all at work. The Omega Co. is running two sets of diggings with large heads of water, and six or seven other companies are ready to start up. The miners at Diamond creek are busy, and the season promises to be lively. On Little York nearly all the companies are washing. The Little York Co. have the best water right in the State. In Bloomfield, Bridgeport and Enreka, the increase of work is in consequence of the additional supply of water in the ditches. At Grass Valley the prospecting in gravel still continues. Rough and Ready appears to be in a fair way to again become renowned as a place of rich mines. At Goshen Hill and Randolph Flat recent developments have been encouraging. At Meadow Lake little will be done until the snow is gone in May or June. During last season the prospect was encouraging, and when the snow melts prospecting will commence in earnest.

The *Transcript* of March 13th says Gentry & Co., of Cement Hill, have met with a hindrance. Owing to an insufficiency of water, their shaft and tunnel have filled with dirt. The tunnel is almost choked up for 300 feet. It will take a week to get ready again.

NORTH STAR.—*Grass Valley Union*, Mar. 14th: The mine declares a dividend which aggregates \$9,000, with a surplus for working or for accidents carried over.

RANDOLPH RIDGE.—McSorley & Co. are making a long run before cleaning up, and the gravel looks well. The Baltic is ready for a clean up, and we expect a good report. Webster & Co. are finding rich pieces of cement above the bed rock. The whole ridge on the Randolph, or Alta Hill, is proving rich.

PLACER COUNTY.

GREENE MINE.—*Herald*, March 11th: The owners have placed on the mine a small crusher, pans and other reduction works, and have made two small runs of the rock. They first reduced ten tons, which yielded \$500 or \$550 to the ton. Another small run of six tons and sixteen hundred pounds from a different class of ore was then put through, which turned out \$1255 in gold, or near \$200 per ton.

GOLD RUN.—*Cor. of Stars and Stripes*, March 9th: "We are having a fine warm rain. There is plenty of water for all the miners. It will be the best season for mining we have had for several years. We had about 18 inches of snow last week, but it has all gone."

RATTLESNAKE BAR.—*Cor. of same*: The water will be in the North Fork ditch in about three weeks.

DUTCH FLAT.—*Cor. of same*: The rain has been falling for three days, the ditches are full, and every body's face has shortened by some inches.

MICHIGAN BLUFF.—The Weske claim at Turkey Hill, paid for the first seven weeks of the year, over and above all expenses, as follows: Jan. 1st, \$752.50; Jan. 8th, \$510; Jan. 15th, \$711; Jan. 22d, \$500; Jan. 29th, \$904.50; Feb. 5th, \$900; Feb. 12th, \$900. Aggregate net yield for seven weeks, \$5,178, or at the rate of \$38,465 per annum. The claim embraces about 1,600 feet of the ridge between El Dorado and Volcano Cañon. A tunnel from the El Dorado Cañon side has been driven 1,700 feet; straight for the first 500 feet, and since that following a rich channel parallel for some distance with El Dorado Cañon, then diverging into the ridge at right angles, and apparently leading towards a main channel supposed to be perhaps a thousand feet farther in, and doubtless immensely rich.

PLUMAS COUNTY.

SAWPIIT FEAT.—*Quincy National*, March 4th: The New York Co. who for some months have been prospecting for the back channel, struck it a short time since. They have had no water to wash up, as yet, but from the gold picked up in the dirt, and the way it "pans," the channel is going to be very rich. The Golden Gate Co. has struck good prospects, and will take out considerable ore, when water comes. Two new companies have commenced operations. The Washington Hill Co. has been taking out good dirt for some time, working six or seven hands, and making ten dollars per day to the man. They worked for a long time in bed-rock, without getting "the color." The tunnels show a large body of rich pay ground, and the boys have a "dead shot" on a fortune. The French Co. adjoining, are also doing well.

ITEMS.—Mr. Hughes, of Meadow Valley, reports everything running smoothly. Crescent Mill has been shut down for the present. Concklin & Ray have purchased the boiler formerly used in the Bull Frog mill, and will put it in their mill at Argentine, as soon as it can be hauled over. The new diggings on the head of the South Fork, between Onion Valley and Gibsonville, will be opened during the summer.

SAN BERNARDINO COUNTY.

CLARKE.—*Guardian*, March 4th: A wagon load of ore came to town on Thursday from Clarke District, which for richness will compare with the best ore of the Pacific Coast. We understand this ore will be forwarded to London.

SAN DIEGO COUNTY.

THE STORM.—*Union*, March 2d: We learn that the storm of last week raged with fury for three days at the mines. The roads have been almost entirely washed away by the heavy rains. In consequence of the impossibility of getting quartz to the mills, operations will be suspended until the roads can be repaired.

SIERRA COUNTY.

FOREST CITY.—*Messenger*, March 11th: The Bald Mountain Co. whose tunnel was started last summer, are now in 650 feet; they unexpectedly struck hard bed rock, and are now making slow headway. They think 100 feet more will finish the hard rock. They have a splendid tunnel and sufficient ground to make all the owners independent. The North Fork Co. whose tunnel was started last September, is in 1,030 feet, the work of four men only. They are running for the main channel and expect to strike it in 2,000 feet, near where the Uncle Sam Co. left it several years ago. The American Co., Knapp & Wren, lower down on the channel, have ground which they are running to prospect. The "Shoo Fly" Co., formerly the Oregon, are working with prospects of ground sufficient to last years. The Young America Co. are still at work. Gregg and Wade, working down Oregon Creek on a small channel, have the dust to show for their labor. Shakeville claims at the old Galloway Ranch, continue to pay well, though there is no water to wash the dirt. The boys pan out enough to pay wages, and expect to get their dividends in the spring. Mr. Low took a piece of gold from his claim this week that weighed 6½ ounces. A company is being formed to open the channel that crosses Rock Creek, which is, without doubt, very rich. Miles and miles of these old channels lie unprospected in Sierra for the want of a little capital to operate with.

EAST FORK MINING CO.—*Democrat*, Mar. 9th: Mr. Earnest Kruse has purchased a controlling interest in the mine known as the "Wehe Ledge," and will put a force of men to work running a tunnel. After developing the ledge sufficiently, he proposes to erect a mill.

THE SHAMROCK.—The Shamrock Boys have again found good pay in their claims on Fir Cap Mountain. They have been working off their pay streak for some time, but have got it now as rich as ever.

SHASTA COUNTY.

IGO CITY.—*Cor. of Courier*, March 11th: The quartz mill of Butterfield & Co., on South Fork, commenced running Saturday. McPherson & Co., on the ridge west of Horsetown, have commenced a short distance from the bank of Clear Creek; the flume through which they run their tailings is four feet wide, three feet deep, and has a fall of four inches to twelve feet. Everything about their claim is on a mammoth scale. The main hydraulic pipe is 22 inches in diameter. At a point where the tunnel crosses the ridge, between Clear Creek and Dry Creek, the flume will be 300 feet below the surface. The total cost of the works contemplated cannot fall much short of \$100,000.

TRINITY COUNTY.

DUTTON CREEK.—Dixon, Hurst & Co. cleaned up their boxes below their hed-rock ditches after a week's run. We could not learn the proceeds. The smiling countenance of their Weaverville partner told us that he was satisfied. The diggings have paid \$15 to \$20 per day to the hand.

RED HILL.—Mr. Peter Weise, of Red Hill, came to town Saturday, bringing proceeds of first clean up. He has been working four weeks with little water, and cleaned up the head of his flume only. We learned enough to warrant us in saying that it amounted to between one hundred and forty and one hundred and fifty ounces.

JUNCTION CITY.—John Franklin is rolling the money out on Canon Creek. A. A. Simonds is doing well in his drift diggings and lately struck another pay streak. McKinney & Grover have started a tunnel to open a drifting claim that can be worked when water is too scarce for their sluicing claim. They are in 160 feet.

DOUGLAS CITY.—Plenty of water, and everybody at work. All the ditches full for the first time in two years. Some strangers who went to work on Trinity bench, have found a good prospect.

CANON CITY.—*Cor. of same*: B. Baumgartner and partner are being well paid for time and money invested in the purchase of the Garwood claim. The other day they picked up \$500, with a prospect for more of the same sort. R. Berkley and G. W. Todd have struck \$8 diggings below the Butler stand, and on the second bench. Water having been scarce longer than usual, it has given the miners time to prospect.

TUOLUMNE COUNTY.

GOOD PROSPECTS.—*Sonora Democrat*, March 11th: We learn that G. A. Treadwell has for some time been working in the Gravel Range not far from Garrote in what is known as the "Kanacka claim." Some time since work on this range was discontinued in consequence of difficulties about water and the litigation which ensued. The prospects are now that good mines will be found in the range; the first clean up made by Mr. Treadwell is reported as paying handsomely.

Nevada.

ESMERALDA.

STRIKE.—*Enterprise*, March 11th: A gentleman just in from Pine Grove states that a very rich vein of gold bearing quartz has been discovered ten miles east of that town. Choice pieces from the surface have yielded at the rate of \$10 to the pound. The lead is only three feet in width, but is well defined and can be traced a great distance.

EUREKA DISTRICT.

PHOENIX.—*Sentinel* March 11th: The main incline of the Adams & Farren is in a body of carbonate ores at a depth of 100 feet, and the Empire and Lexington are yielding large quantities of the richest ore. We have samples that cannot be excelled in this district. The Empire is a well defined vein three feet thick, worth \$100 to the ton in gold and silver. The Lexington is six feet thick, with ore about the same. Enough has been done on these mines to show that they are permanent and reliable. This company will probably erect reduction works soon.

RICHMOND FURNACE.—*Supt. Dunne* has a full number of mechanics at work on this new furnace and it will be ready to fire up in a few days. When this is completed there will be an addition of 7 to 9 tons to the billion yield of the district. We need 20 as good furnaces to use up the ores as fast as the miners are producing it.

HUMBOLDT.

OREANA.—*White Pine News*, March 8th: We learn that at Cottonwood Canyon, near Oreana, the mine owners are shipping considerable quantities of ore to San Francisco—realizing therefor an average of \$80 per ton—netting, above all expenses, \$40.

CENTRAL.—*Silver State*, March 11th: Shipments of ore continue from Mill City to the Anburn Mill in Reno. Mr. King has returns from a lot recently treated, which yielded \$175 per ton, and Clark another lot, showing \$130.50 per ton.

RYE PATCH.—*Cor. of same*: F. F. Oshiston, of the Anburn Mill, paid a visit for the purpose of examining the Alpha mine, and intends to resume work on it, as soon as he gets a survey made. Cody & Leyson have resumed operations on the Hard Cash. The Butte mill is shut down, for the purpose of putting in five more stamps—making ten—and making some improvements on the furnace, which has proven a decided success. Ore is being shipped here for reduction from Belmont, Golconda, and several other districts.

WASHOE.

KENTUCK.—Gold Hill News, March 11th: The hoisting works started yesterday. It will take two weeks to make repairs. There is considerable good ore in the section where the fire occurred.

DANEY.—The Co. have sunk a new shaft 200 feet, and are running a drift to reach a body of rich ore which they believe to exist at the bottom of the old works. The drift is in 100 feet.

HALE AND NORCROSS.—Enterprise, 12th: About 190 tons of ore daily extracted. On the lowest level the breasts yield the usual quantity. From the old mine 30 tons per day of moderate quality is produced. February dividend was \$5 per share.

SAYAGE.—The daily yield is 120 tons of ore. The two northernmost compartments of the shaft are being retimbered. The eighth and ninth levels are producing the usual ore. The south drift will soon be connected with the Hale & Norcross. About 25 tons is daily extracted from the old levels.

CHOLLAR-POTOSI.—During the past week there have been extracted 1,630 tons of ore. The average assays have been \$64.80. They yesterday shipped to San Francisco bullion \$31,500.

OPHIR.—Work is vigorously prosecuted in the up-rise from the south drift. No ore has yet been found, but the indications are good.

CROWN POINT.—The ore deposit in the 1,100-foot level still holds out. It has been followed 112 feet. It shows better than ever in the face.

SIERRA NEVADA.—This mine is yielding well and the mill is in constant operation. The Sacramento and Meredith mill is steady at work.

SUTRO TUNNEL.—The Tunnel was in 1,860 feet yesterday. The rock is hard but works tolerably well. A considerable flow of water is coming from the face.

IMPERIAL.—The Imperial main drift is 10 feet into the Holmes ground. They will commence cross-cutting in eight or ten days.

YELLOW JACKET.—There was a rumor yesterday that good ore had been encountered on the 1,100-foot level, north. The deposits in the 1,000-foot level north look well.

VIRGINIA CONSOLIDATED.—A cross-cut to the east has been made from the north drift without finding ore; a cross-cut will now be made to the west.

SEGREGATED BELCHER.—Work is going on as usual.

BELCHER.—This mine is yielding well in all the ore breasts. Considerable prospecting is being done.

BUCKEYE.—This mine, at Silver City, is yielding well. New hoisting machinery will soon be erected.

CALEDONIA.—The Co. are taking out 100 to 120 tons of ore per day, which is being crushed at the Sapphire and Piute mills.

GOULD AND CURRY.—This is yielding as usual, and a good deal of prospecting is being done in the old levels.

OVERMAN.—The Co. are taking out the usual ore.

NEW DIAGNOSIS.—The Carson Register of March 14th says that rich gold and silver quartz and placer mines have been discovered 32 miles south-east of that city, on the East Fork of the Carson. There is so far only one quartz ledge, but that is 100 feet wide and crops out 30 feet. It is traceable for half a mile. It is a few miles from the Mammoth ledge in Eagle District. The quartz is decomposed and a painful taken anywhere from the top of the ledge, will yield twenty to fifty colors of gold. Assays made at the United States Branch Mint show the quartz to carry \$106 to \$175 in silver to the ton. The first location, called the Oriental, was made by J. A. Blethen, E. B. and G. H. Hancock. The bed of the stream below the ledge yields gold-dust worth about \$16 per ounce.

WHITE PINE.

REVIEW.—News, March 11th: The mining interests of our district are looking brighter than ever, notwithstanding the weather. Not a mine of any prominence, that has been steadily worked, but what shows a marked improvement. In several leading mines the force has been increased, and in a few weeks there will be steady employment for some hundreds of miners. There is evidently a better feeling abroad regarding our district. The tramway is rapidly approaching completion. One half mile of the wire was stretched yesterday. It is expected to be in working order two weeks from to-day. The Big Smoky mill is never idle. Ores have been worked at this mill from some dozen different mines during the week, the pulp assays of which run all the way from \$50 to \$700 per ton. Several base metal mines started work during the week, and many more will start when the weather becomes settled.

ITEMS.—Ten more men put on Original Hidden Treasure, making 36 in all. Silver Wave east chamber is opened 40 feet through a solid mass of high grade ore. In running the Allen tunnel, several veins were cut, from four inches to two feet thick, and assaying \$50 to \$6,000 per ton. Pulp assay of Nevada ore is \$518. Do. of Empire State, \$686. Trench is taking out high grade ore. Vanderbilt has \$150-ore. Ward Beecher Consolidated, belonging to Gov. Blaisdel, has ore like that of the Ward Beecher. Oasis mill is turning out quantities of fine bullion from Ward Beecher ore. It is reported that the Maryland mine, in Pinto district, has been sold for \$300,000. Specimens assay as high as \$9,000 per ton.

San Francisco Market Rates.

WHOLESALE PRICES.—MISCELLANEOUS.

FRI, March 17, 1871	
Sugar, crd. 13 @ 14 1/2	Hemp Seed, 13 @ 14
Hawaiian, do. 9 @ 10	Castor Oil, 1 @ 1 1/2
Coffee, C. R. 16 @ 17 1/2	Castor Oil, 1 @ 1 1/2
Rio, do. 17 @ 18	Linsed Oil, 1 @ 1 1/2
Tia, Japan, 15 @ 16	Broom Corn, 1 @ 1 1/2
Green, do. 15 @ 16	Green Wax, 1 @ 1 1/2
Haw'n Rice, 15 @ 16	Peanuts, 1 @ 1 1/2
China, do. 15 @ 16	Corn Meal, 100 lbs. 2 @ 3
Coal Oil, 1 gal. 15 @ 16	Onions, N. C. 1 @ 1 1/2
Candles, 1 lb. 14 @ 15	

RETAIL PRICES.—MISCELLANEOUS.

Butter, Cal. fr. 35 @ 40	Map, Sugar, do
Pickled, do. 35 @ 40	Wool Sacks, new
Or. pick'd, do. 35 @ 40	Second-hand do
Honey, 1 lb. 25 @ 30	Wheat-sks, 22x36 13 1/2 @ 14
Cheese, 1 lb. 20 @ 25	Potato G. Y. Bags, 15 @ 22
Eggs, per doz. 20 @ 25	Deer Skins, 15 @ 22
Lard, 1 lb. 15 @ 20	Sheep sks. w/ on 50 @ 75
Sugar, crd. 13 @ 14 1/2	Sheep sks. plain, 12 @ 25
Brown, do. 13 @ 14	Goat skins, each, 25 @ 35
Beet, do. 13 @ 14	

PRODUCE, ETC.

Flour, ex. 100 lbs. 50 @ 60	Barley, 100 lbs. 30 @ 35
Superfine, do. 50 @ 60	Beans, 100 lbs. 18 1/2 @ 20
Corn Meal, 100 lbs. 25 @ 30	Potatoes, 100 lbs. 50 @ 60
Wheat, 100 lbs. 25 @ 30	Hay, 1 ton 10 @ 15
Oats, 100 lbs. 15 @ 20	Live Oak Wood, 10 @ 12

FRUITS, VEGETABLES, ETC.

Pine Apples, 1/2 doz. 50 @ 60	Dried Herbs, 1/2 doz. 25 @ 50
Bananas, 1/2 doz. 50 @ 60	Egg Plant, 1/2 doz. 25 @ 50
Cal. Valants, 1/2 doz. 50 @ 60	Green Peas, 1/2 doz. 25 @ 50
Cranberries, 1/2 doz. 50 @ 60	Green Corn, 1/2 doz. 25 @ 50
Apples, No. 1, 1/2 doz. 50 @ 60	Sugar Peas, 1/2 doz. 25 @ 50
Pears, do. 1/2 doz. 50 @ 60	Mushrooms, 1/2 doz. 25 @ 50
Plums, dried, 1/2 doz. 50 @ 60	Horseshoe, 1/2 doz. 25 @ 50
Peaches, dried, 1/2 doz. 50 @ 60	Okra, dried, 1/2 doz. 25 @ 50
Lemons, 1/2 doz. 50 @ 60	Pumpkins, 1/2 doz. 25 @ 50
Figs, dried, 1/2 doz. 50 @ 60	Parsnips, 1/2 doz. 25 @ 50
Asparagus, wh., 1/2 doz. 50 @ 60	Parsnips, 1/2 doz. 25 @ 50
Artichokes, 1/2 doz. 50 @ 60	Pickles, 1/2 doz. 25 @ 50
Brussels sprouts, 1/2 doz. 50 @ 60	Rhubarb, 1/2 doz. 25 @ 50
Beets, 1/2 doz. 50 @ 60	Radishes, 1/2 doz. 25 @ 50
Cress, 1/2 doz. 50 @ 60	Green Peppers, 1/2 doz. 25 @ 50
Potatoes, sweet, 1/2 doz. 50 @ 60	Red, do. 25 @ 50
Tomatoes, 1/2 doz. 50 @ 60	Summer Squash, 1/2 doz. 25 @ 50
Broccoli, 1/2 doz. 50 @ 60	Marrow fat, do. 25 @ 50
Cauliflower, 1/2 doz. 50 @ 60	Hubbard, 1/2 doz. 25 @ 50
Cabbages, 1/2 doz. 50 @ 60	String Beans, 1/2 doz. 25 @ 50
Carrots, 1/2 doz. 50 @ 60	Green Lima, sh., 1/2 doz. 25 @ 50
Celery, 1/2 doz. 50 @ 60	Spinage, w/ bskt. 25 @ 50
Cross, 1/2 doz. 50 @ 60	Salsify, 1/2 doz. 25 @ 50
Cucumbers, 1/2 doz. 50 @ 60	Turnips, 1/2 doz. 25 @ 50

POULTRY, GAME, MEATS, ETC.

Chickens, apiece 75 @ 81	Lamb, 1/2 lb. 10 @ 12
Turkeys, 1/2 lb. 20 @ 25	Tongues, beef, 1/2 lb. 10 @ 12
Ducks, wild, 1/2 lb. 20 @ 25	Tongues, pig, 1/2 lb. 10 @ 12
Geese, wild, each 42 @ 48	Bacon, Cal. 18 @ 20
Tame, pair, 40 @ 45	Oregon, do. 18 @ 20
From Chicago, 40 @ 45	Hams, Cal. 18 @ 20
Geese, wild, each 42 @ 48	Hams, Oregon, 18 @ 20
Tame, pair, 40 @ 45	Choice D'field 30 @ 35
From Chicago, 40 @ 45	Whittaker's 30 @ 35
Hens, each, 15 @ 20	Johnson's Or. 25 @ 30
Snipe, 1/2 doz. 12 @ 15	Salmon, 1/2 doz. 12 @ 15
English, do. 12 @ 15	Smoked, new, 12 @ 15
Verizon, 1/2 doz. 12 @ 15	Pickled, 1/2 doz. 12 @ 15
Quails, 1/2 doz. 12 @ 15	Rock Cod, 1/2 lb. 12 @ 15
Pigeons, dom. 1/2 doz. 12 @ 15	Perch, 1/2 doz. 12 @ 15
Wild, do. 12 @ 15	Lake Big Trout, 25 @ 30
Hares, each, 40 @ 50	Smelts, 1/2 doz. 10 @ 12
Rabbits, tame, 50 @ 60	Codfish, dry, 10 @ 12
Wild, do. 50 @ 60	Herring, fresh, 10 @ 12
Squirrel, 1/2 pair, 25 @ 30	Smk'd, 100 lbs. 50 @ 60
Beef, tend, 1/2 lb. 20 @ 25	Tomcod, 1/2 doz. 25 @ 30
Sirloin and rib, 18 @ 20	Terrapin, 1/2 doz. 50 @ 60
Corned, do. 12 @ 15	Macaroni, p. k. ea. 20 @ 25
Smoked, do. 12 @ 15	Fresh, do. 20 @ 25
Pork, rib, etc., 12 @ 15	Sea Bass, 1/2 doz. 62 @ 75
Chops, do. 12 @ 15	Starurgeon, 1/2 doz. 40 @ 45
Veal, 1/2 lb. 15 @ 20	Oysters, 100, 1 @ 1
Cutlet, 1/2 lb. 15 @ 20	Chesp. 1/2 doz. 61 @ 60
Mutton chops, 15 @ 18	
Leg, do. 12 @ 15	

Per lb. Per dozen Per gallon.

LEA & PERRINS' WORCESTERSHIRE SAUCE.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcester-shire Sauce, upon the wrapper and labels of which the names of Lea & Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper. Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

THE NEW TYPE ON WHICH THE SCIENTIFIC PRESS IS PRINTED, IS FROM THE CALIFORNIA TYPE FOUNDRY, 405 AND 407 Sansome St. GEO. L. FAULKNER, Agent. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Wholesale and for export to Proprietors, Worcester: Cross and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-3mins

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., March 16. The mining stock market has been active with some very heavy transactions during the last week, and considerable fluctuations in the prices. Last Friday, dividends were paid by the following companies:—Chollar-Potosi, \$140,000; Golden Chariot, \$70,000; Hale & Norcross, \$40,000; North Star, \$9,000; Yellow Jacket, \$48,000. The Chollar-Potosi paid an extra dividend yesterday. Amador has been quoted a couple of times at \$330.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Price, Mar. 9. Highest, Lowest Mar. 16. Adv. Dec.

Alpha Cons.	21	27	18	33	9	—
Belcher	79	79	64	69	—	10
Chollar-Potosi	72	72	65	100	28	1
Crown Point	12	12	11	11	—	—
Golden Chariot	75	75	61	61	—	14
Gould and Curry	41	41	41	45	4	—
Hale and Norcross	9	9	80	81	—	9
Imperial	15	23	15	22	7	—
Imperial	15	23	15	22	7	—
Kentuck	51	63	51	67	16	—
Meadow Valley	17	19	15	14	—	13
Ophir	17	19	15	14	—	—
Orig. Hid. Treas.	5	7	5	6	1	—
Overman	3	3	3	3	—	—
Savage	4	4	4	4	—	—
Sierra Nevada	12	12	10	10	—	—
Yellow Jacket	48	50	43	50	2	—

Latest Prices. [S. F. Stock and Exchange Board.]

BID, ASKED.	
Alpha Cons.	7 1/2
Amador	325
Belcher	330
Chollar-Potosi	69
Crown Point	103
Dancy	4 1/2
Golden Chariot	4 1/2
Gould & Curry	44
Hale & Norcross	7 1/2
Imperial	11 1/2
Imperial	22
Meadow Valley	13 1/2
Ophir	8 1/2
Orig. Hid. Treas.	5 1/2
Savage	4 1/2
Sierra Nevada	10
Yellow Jacket	49

Alpha Cons. 7 1/2, Amador 325, Belcher 330, Chollar-Potosi 69, Crown Point 103, Dancy 4 1/2, Golden Chariot 4 1/2, Gould & Curry 44, Hale & Norcross 7 1/2, Imperial 11 1/2, Imperial 22, Meadow Valley 13 1/2, Ophir 8 1/2, Orig. Hid. Treas. 5 1/2, Savage 4 1/2, Sierra Nevada 10, Yellow Jacket 49.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.] SAN FRANCISCO, Thursday, March 16. SOLE LEATHER.—The demand is still equal to the supply, and prices firm.

CALF AND KIP SKINS.—The close of the war has made no difference in the price of French stock as yet, and probably will not. Domestic skins rule the same as heretofore.

Best French Calf Skins, 1/2 doz.	76 00 @ 100 57
Common French Calf Skins, 1/2 doz.	35 00 @ 75 00
French Kips, 1/2 lb.	1 00 @ 1 00
California Kip, 1/2 lb.	60 00 @ 75 30
California Calf, 1/2 lb.	1 00 @ 1 00
Eastern Wool Stuffed Calf, 1/2 lb.	80 @ 1 25
Eastern Bench Stuffed Calf, 1/2 lb.	1 10 @ 1 50
Eastern Calf for Backs, per lb.	1 15 @ 1 26
Sheep Roams for topping, all colors, 1/2 doz	8 50 @ 13 02
Sheep Roams for linings, 1/2 doz.	5 50 @ 10 07
California Russet Sheep Linings, 1/2 doz	1 75 @ 5 35
HARNESS LEATHER, 1/2 lb.	30 @ 30
Fair Bridle, 1/2 doz.	30 @ 30
Skirting, 1/2 side.	4 50 @ 4 50
Welt Leather, 1/2 doz.	30 00 @ 60 40
Buff Leather, 1/2 foot.	22 @ 50

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, March 17, 1871

IRON.—Duty: Pig, 51 1/2 ton: Railroad, 60 @ 100 lbs; Bar, 10 1/2 @ 11 1/2; Sheet, polished, 30 @ 35; common, 15 @ 20; 1/2 in. Plate, 31 1/2; Pipe, 15 @ 17; Galvanized, 24 @ 25; Scotch and English Pig Iron, 1/2 ton, \$34 00 @ \$35 00; White Pig, 1/2 ton, 32 @ 33 00; Refined Bar, bad assortment, 1/2 lb., 04 @ 04 1/2; Refined Bar, good assortment, 1/2 lb., 04 1/2 @ 04 1/2; Boiler, No. 1 to 3, 04 1/2 @ 04 1/2; Plate, No. 5 to 9, 04 1/2 @ 04 1/2; Sheet, No. 10 to 20, 05 @ 05 1/2; Sheet, No. 24 to 27, 05 @ 05 1/2; Copper.—Duty: Sheathing, 3/4 @ 1/2; Pig and Bar, 2 1/2 @ 2 1/2; Sheathing, 1/2 lb., 20 @ 21; Sheathing, Yellow, 20 @ 21; Sheathing, Old Yellow, 10 @ 11; Composition, 10 @ 11; Composition Bolts, 20 @ 22; TIN PLATES.—Duty: 25 per cent. ad valorem. Plates, Charcoal, 1/2 @ 10; 10 @ 10; 10 @ 10; Roofing Plates, 10 @ 10; Rancin Tin Slabs, 1/2 lb., 04 @ 04; Scotch, English and Welsh, 1/2 lb., 04 @ 04; QUICKSILVER.—1/2 lb., 06 @ 07; LEAD.—Pig, 1/2 lb., 06 @ 07; Sheet, 09 @ 09; Zinc, 1/2 lb., 08 @ 08; ZINC.—Sheets, 1/2 lb., 10 1/2 @ 11; BORAX, 25 @ 35.

IRON.—Duty: Pig, 51 1/2 ton: Railroad, 60 @ 100 lbs; Bar, 10 1/2 @ 11 1/2; Sheet, polished, 30 @ 35; common, 15 @ 20; 1/2 in. Plate, 31 1/2; Pipe, 15 @ 17; Galvanized, 24 @ 25; Scotch and English Pig Iron, 1/2 ton, \$34 00 @ \$35 00; White Pig, 1/2 ton, 32 @ 33 00; Refined Bar, bad assortment, 1/2 lb., 04 @ 04 1/2; Refined Bar, good assortment, 1/2 lb., 04 1/2 @ 04 1/2; Boiler, No. 1 to 3, 04 1/2 @ 04 1/2; Plate, No. 5 to 9, 04 1/2 @ 04 1/2; Sheet, No. 10 to 20, 05 @ 05 1/2; Sheet, No. 24 to 27, 05 @ 05 1/2; Copper.—Duty: Sheathing, 3/4 @ 1/2; Pig and Bar, 2 1/2 @ 2 1/2; Sheathing, 1/2 lb., 20 @ 21; Sheathing, Yellow, 20 @ 21; Sheathing, Old Yellow, 10 @ 11; Composition, 10 @ 11; Composition Bolts, 20 @ 22; TIN PLATES.—Duty: 25 per cent. ad valorem. Plates, Charcoal, 1/2 @ 10; 10 @ 10; 10 @ 10; Roofing Plates, 10 @ 10; Rancin Tin Slabs, 1/2 lb., 04 @ 04; Scotch, English and Welsh, 1/2 lb., 04 @ 04; QUICKSILVER.—1/2 lb., 06 @ 07; LEAD.—Pig, 1/2 lb., 06 @ 07; Sheet, 09 @ 09; Zinc, 1/2 lb., 08 @ 08; ZINC.—Sheets, 1/2 lb., 10 1/2 @ 11; BORAX, 25 @ 35.

IRON.—Duty: Pig, 51 1/2 ton: Railroad, 60 @ 100 lbs; Bar, 10 1/2 @ 11 1/2; Sheet, polished, 30 @ 35; common, 15 @ 20; 1/2 in. Plate, 31 1/2; Pipe, 15 @ 17; Galvanized, 24 @ 25; Scotch and English Pig Iron, 1/2 ton, \$34 00 @ \$35 00; White Pig, 1/2 ton, 32 @ 33 00; Refined Bar, bad assortment, 1/2 lb., 04 @ 04 1/2; Refined Bar, good assortment, 1/2 lb., 04 1/2 @ 04 1/2; Boiler, No. 1 to 3, 04 1/2 @ 04 1/2; Plate, No. 5 to 9, 04 1/2 @ 04 1/2; Sheet, No. 10 to 20, 05 @ 05 1/2; Sheet, No. 24 to 27, 05 @ 05 1/2; Copper.—Duty: Sheathing, 3/4 @ 1/2; Pig and Bar, 2 1/2 @ 2 1/2; Sheathing, 1/2 lb., 20 @ 21; Sheathing, Yellow, 20 @ 21; Sheathing, Old Yellow, 10 @ 11; Composition, 10 @ 11; Composition Bolts, 20 @ 22; TIN PLATES.—Duty: 25 per cent. ad valorem. Plates, Charcoal, 1/2 @ 10; 10 @ 10; 10 @ 10; Roofing Plates, 10 @ 10; Rancin Tin Slabs, 1/2 lb., 04 @ 04; Scotch, English and Welsh, 1/2 lb., 04 @ 04; QUICKSILVER.—1/2 lb., 06 @ 07; LEAD.—Pig, 1/2 lb., 06 @ 07; Sheet, 09 @ 09; Zinc, 1/2 lb., 08 @ 08; ZINC.—Sheets, 1/2 lb., 10 1/2 @ 11; BORAX, 25 @ 35.

IRON.—Duty: Pig, 51 1/2 ton: Railroad, 60 @ 100 lbs; Bar, 10 1/2 @ 11 1/2; Sheet, polished, 30 @ 35; common, 15 @ 20; 1/2 in. Plate, 31 1/2; Pipe, 15 @ 17; Galvanized, 24 @ 25; Scotch and English Pig Iron, 1/2 ton, \$34 00 @ \$35 00; White Pig, 1/2 ton, 32 @ 33 00; Refined Bar, bad assortment, 1/2 lb., 04 @ 04 1/2; Refined Bar, good assortment,

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING FEBRUARY 28TH.

APPARATUS FOR CARBURETING AIR.—Alexander Dalrymple Bell, San Francisco.

TREADLE FOR SEWING MACHINES.—Francis E. Mills, San Francisco.

BALING PRESS.—Thomas J. Corning, San José, Cal.

ANCHOR.—William M. Hughes, San Francisco.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

PLOW.—J. P. Pritchard, Conn Valley, Napa county, Cal. This invention relates to that class of side-hill plows, in which two plows are attached to a shaft upon which they can be revolved so as to convert it into a right or left-hand plow as desired. The construction is such, that when it is at work, one of the plows is held and carried in a position approximating to a right angle with the other; when it is desired to reverse them, the plow is allowed to turn until both landsides rest upon the ground, when, by means of a lever releasing a catch, the bram and handles can be turned to the opposite side and the position of the plows changed without stopping the team and without effort on the part of the plowman. This device can be used also for cultivating level land, using either the right or left-hand plow for this purpose.

ELECTRO-MAGNETIC SEWING MACHINE.—G. Stevens and J. Hendy, S. F. The sewing machine is undoubtedly one of the most useful inventions of the age, and its effect in ameliorating the condition of the poor sewing woman of the large cities, to say nothing of other benefits, is stated to be most important. Yet objections have been made by medical men on account of injurious physical effects arising from the common method of operating the machines by means of the treadle. As an obviolation of this trouble, Messrs. S. and H. have invented an improved method of driving the apparatus by means of electricity. Their invention consists in a novel arrangement of the electro-motor by which greater power is obtained from the coils; in a device for regulating the power and speed; in the simplicity of the feed movement; and in driving the needle-bar directly from the armatures or coils, without the intervention of cranks or wheels of any sort, which occasion much loss of power.

TRADE MARK.—Dr. G. C. Furber, Yreka, Siskiyou county, Cal. This trade mark is designed to protect a medicine patented by the doctor and known as Furber's Cordial of Mountain Balm and Oregon Grape. The plants from which the main constituents of the compound are derived, have been used for long periods of time and are known to have a beneficial effect in many classes of disease, as many of our readers can doubtless testify from their own experience; hence it can be readily believed that, as stated, its virtues are not merely visionary. We have been informed of several cases where the effect of the compound is given as most beneficial.

BOOT JACK.—E. Coleman, S. F. This is an improvement on a small but important article of "every gentleman's furniture,"—and consists principally in an addition to the ordinary boot jack by which the toe of the boot is held while it is being drawn from the foot. The arrangement is such that the boot jack will be rendered much more convenient, and useful for the purpose for which it is intended. We have tried it and found it very convenient, and the fat man who occasionally pervades our office and who, by the way, has not been able to see his pedal extremities for the last ten years, declares that it is the "best thing ever invented."

The American Turbine Wheel.

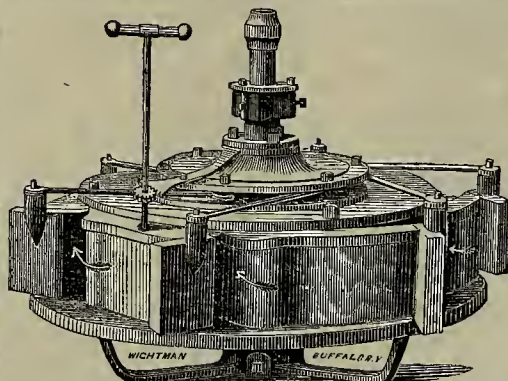
That apparatus which enables one to utilize to the best advantage the resources provided by nature, is of the highest importance; and as water is so general a power and used by the farmer, the miner and the mechanic, the best water wheel is of interest to each of these classes. The over-shot wheel can often be used and give excellent results, and often it cannot be applied and some other form of machinery must be sought. In such a case the turbine will come into play, and as this wheel has been perfected in its details of construction, it is being introduced with advantage often where an over-shot wheel might be used.

We illustrate this week a form of turbine which claims superiority over other forms, and which is said by its manufacturers to give equally as much power as can be obtained from the best overshot wheel, usually considered the best form as far as this one point is concerned. In the place of the overshot or breast wheels, they say, "with their ponderous gearing, which are very expensive and a constant source of annoyance to those using them, the American Turbine comes as a welcome friend. Instead of wheels of 25 or 30 feet diameter, our turbines of as many inches diameter take their place, and perform the same amount of work (and in most instances much more) with the same amount of water."

The wheels and cases of the American turbine water wheels are made entirely of iron, with a bridgetree above and below, secured firmly to the

step, or pressure to one side.

There are six to twelve graduated shutes on each wheel, depending on their diameter. Each gate and shute is cast in one piece and moves horizontally; the shutes being hinged at a point near the inside of the case, or point of depletion. Thus, as the gates are opened or closed, it will be seen that the shutes move with the gates, as at Fig. 2; the upper portion of the case is removed to show their form. The lines behind the shutes represent the guards which are cast between the upper and lower plates of the case. These guards relieve the gates from the hydrostatic pressure of the head; consequently the gates are easily opened and closed by a ring and levers, operated with a segment and pinion.



AMERICAN TURBINE WATER WHEEL.—PERSPECTIVE VIEW.



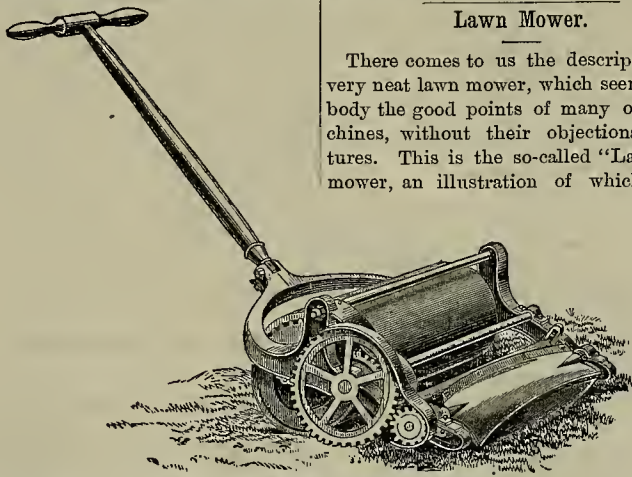
AMERICAN TURBINE WATER WHEEL.—SECTIONAL VIEW.

The gate rod, on which the pinion is placed, passes up through the husk or floor, with a hand-wheel on the upper end, for the purpose of operating the gates. Whether the gates are fully or partially opened, the shutes are always adjusted to suit the amount of water admitted through the gates, and therefore the wheels will produce as high per cent. of power with half, as with full gates. This is a point in which turbine wheels hitherto have been seriously defective.

There are other points which might be dwelt on at greater length, but we must refer our readers to the engravings, and to the manufacturers and patentees, Messrs. Stout, Mills and Temple, of the Globe Iron Works, Dayton, Ohio. These gentlemen have worked for a long time, and with evident intelligence, and their device certainly deserves careful examination.

Lawn Mower.

There comes to us the description of a very neat lawn mower, which seems to embody the good points of many other machines, without their objectionable features. This is the so-called "Landscape" mower, an illustration of which is here



THE "LANDSCAPE" LAWN MOWER.

given, and of certain points of which mention may be made.

For throwing the machine in or out of gear, in place of a ratchet and spring, a patent friction pawl is used, so that the mower is always in gear when going forward, and always out of gear, and noiseless, when going backwards. This pawl is entirely concealed, and, like the gearing, is protected from obstructions by grass, dirt and other substances.

By means of an adjustable roller, in the rear of the knife bar, an easily-running machine is produced, which, we are told, accommodates itself to any unevenness of the

ground, mowing borders or lawns alike, complete without trouble of change, and thus dispensing with shoes or rollers in front of the cutter, which beat down the grass and make it impossible to cut evenly.

The cutting surfaces are made of the best cast steel, hardened and tempered, and attached to a heavy fly in a very substantial manner. The whole machine is built with great care, and weighs 65 pounds. It cuts a 15-inch swath and can be operated by anybody. The price is \$25. The manufacturers claim long experience with lawn mowers of every description, and that they can recommend this with perfect confidence in its merits. They seem to have a very good article. For particulars, apply to Hovey & Co., No. 57 State street, Chicago, Ill.

NORTHERN PACIFIC RAILROAD TO BE THE SHORTEST ROUTE TO RUSSIA.—The N. Y. *Tribune* says: It is an interesting fact that the war between Germany and France has casually demonstrated the truth that the shortest line of communication between the mouth of the Amoor and St. Petersburg is by way of Puget Sound and New York city. On the 13th of November the North German bark Galatea arrived at Port Townsend, on the Sound, bringing dispatches for the Russian Government, commercial letters and drafts from Nicolaivski, to be forwarded to St. Petersburg. The vessel also brought letters to be forwarded to Bremen. These all were mailed at our post-office in Port Townsend. Duplicates had been previously sent overland from Nicolaivski by way of Moscow. The bark was 28 days from the mouth of the Amoor. Allowing 12 days for the mail to go from Port Townsend to New York, and 20 days from here to St. Petersburg, the Galatea's mail would reach the Russian capital in 60 days from the Amoor by way of Puget Sound. The duplicate mail by way of Moscow, the Galatea's captain said, would take 90 days for delivery, unless carried on snow, when it would take 65 days. The shortest time across the United States, it will be noted, was made by using a sailing vessel. It seems apparent that when the Northern Pacific Railroad is complete and a line of steamers runs between the Amoor and Puget Sound, not only will the East Russian mails come through New York, but an immense trade, which is now dormant or non-existent, will pass over that road to take shipping in our harbor.

QUICKSILVER.—The San José *Independent* says that the Almaden Mine is turning out a larger quantity of ore than it did last summer, some new pockets having been struck which pay from 25 to 35 per cent. The production has increased from 800 flasks to which it had at one time sunk, to twelve or fifteen hundred flasks per month. * * * The Vallecito *Chronicle* of March 7th, says:—Work continues to be prosecuted on the cinnamon lode four miles from Vallejo, and Mr. Dennis, the superintendent of operations, is authority for the statement that a vein of paying rock rich in cinnamon has been struck in a new tunnel at a distance of 145 feet in the hill. There are favorable indications of a quicksilver development of great richness, and the probabilities are that the stockholders will be amply remunerated for all their labor and expense in the work of exploration. * * * The Santa Cruz Quicksilver Company is developing a promising ledge. * * * The Bella Union quicksilver mine, situated on the west side of Napa Valley, has been sold to a San Francisco company, for the sum of \$75,000.

GEOLOGY IN OREGON.—The Salem, Oregon, correspondent of the *Union* says:—Rev. Thos. Condon, at the Dalles, possesses a cabinet of specimens acquired during various summer excursions, which is one of the few scientific wonders, and lately he lectured upon his favorite art at Portland, his text being, "Three Stone Heads," which three were veritable specimens he had dug from the sandstone chronicles, and presented to his audience as representing three different periods. These were skulls of a family anterior to the mammoth and the elephant, and of a race as huge as they, dug from the strata, disclosed by a ravine, on John Day river, where a wall 1,500 feet deep, whose face was cut by the waters of many centuries, reveals to the philosopher the secrets of an era before man existed, and even before the Cascade mountains had risen to form a barrier to the ocean.

BET SUGAR IN COLORADO.—The question of the manufacture of beet sugar is being agitated by the people of Colorado.

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARR before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Chlorine—Common Salt.

LECT. IV. March 11.—Chlorine was first discovered by a Swedish chemist, in 1774, who, however, thought that it was a compound and called it muriatic acid. In 1809, a French chemist found reason to consider it an element, and in 1810, an Englishman, Sir Humphrey Davy, showed conclusively that it was a compound, and named it chlorine, (from the Greek word *Chloros*, green) from its color.

Chlorine is a yellowish greenish gas. It is found quite widely distributed in nature, but always combined with another substance. It occurs very commonly with sodium as chloride of sodium, or common salt, of which it constitutes 60 per cent. It also occurs quite commonly with magnesium. Chloride of sodium and chloride of magnesium constitute between 2½ and 3 per cent. of the sea water.

Salt is found almost everywhere in the soil to some extent. Sometimes it occurs in large amounts in beds, as near Cracow, Austrian Silesia, and in Spain. It dissolves readily in water, and as this leaches through the soil, it takes up the salt, conveying it to springs, to lakes, rivers and the ocean. The ocean is indeed a great salt pan. The water brings salt into it, is evaporated (leaving the salt) and falls on the land to furnish a fresh supply. Thus salt has accumulated to a large extent, and in some inland seas, which have no outlet, the water holds up to 20 or 25 per cent., as in Salt Lake and the Dead Sea.

We can obtain chlorine either directly or indirectly from salt. It is more convenient to obtain it indirectly, from chlorohydric acid, a compound of chlorine and hydrogen, which we get from salt. If we subject chlorohydric acid to the action of oxide of manganese, which occurs as an ore, part of the oxygen of this substance seizes on the hydrogen of the acid, forming water, and chlorine is set free. It is perhaps more economical for this purpose to heat salt, oxide of manganese and sulphuric acid together.

Chlorine—Its Properties.

Chlorine, as I said before, is a yellowish greenish gas. It is two and a half times as heavy as air. It cannot be breathed with safety unless greatly diluted with air, irritating the mucous membranes of the air passages, and producing very serious results if taken in large amounts. It is found, however, to be sometimes beneficial for certain throat troubles, if very dilute.

If I introduce a lighted taper into this jar of chlorine gas, it burns feebly at the mouth of the jar, producing considerable smoke, and is then extinguished.

This piece of phosphorus, which I put into chlorine gas, burns, giving off a white smoke, which is a compound of chlorine and phosphorus. The affinity of the two is so strong that we can get them to combine even under water. In this vessel, which is partly full of water, I have chloride of potash and some pieces of phosphorus. Now I carefully add a little sulphuric acid, which decomposes the chloride of potash, and the chlorine then attacks the phosphorus with such energy that there is a lively combustion in the water.

Chlorine unites with many metals with greater energy than does oxygen. Pouring metallic arsenic, in fine powder, into the gas, we have a shower of fire. This would be the case with gold, antimony, silver and copper. Here we have combustion without oxygen; it is merely the effect of chemical energy. If we had used oxygen in our experiment, we should have been obliged to raise the temperature of the metal to get combustion or chemical union.

Making Salt—Affinity for Hydrogen.

By heating a piece of sodium until it commences to burn and then introducing it into the jar, I get common salt. This shows the wonderful change in the nature of substances when they unite to form a chemical compound. We could not partake of either chlorine or sodium before they were combined, but afterwards they afford a most important article of diet.

Chlorine depends for its uses in the arts on its affinity of hydrogen. I can demonstrate this affinity by a simple experiment. Oil of turpentine holds a large relative amount of hydrogen in connection with carbon. I wet this paper with the turpentine (thus getting it in a fine state of sub-

division) and introduce it into the gas. It burns readily with a dense, black smoke, which is nothing but carbon. Carbon has been set free and chlorohydric (or hydrochloric) acid formed. [The lecturer performed several similar experiments.]

In these experiments we have had the hydrogen in compounds. But I can make hydrogen gas combine directly with chlorine by burning it and introducing the flame into chlorine gas.

We can make chlorohydric acid by treating salt with sulphuric acid. Chlorine is readily absorbed in water, one measure of water dissolving two measures of chlorine.

Bleaching—Purifying Agent.

If we introduce a piece of colored muslin into chlorine water (water in which chlorine has been absorbed), it will be quickly bleached. If we hang a piece of wet-colored muslin in chlorine gas, the same effect is produced. If we pour chlorine water upon ink, the ink loses its color. Chlorine bleaches and destroys colors derived from the animal and vegetable kingdom. It does this by taking out the hydrogen which they all contain, thus decomposing them. Hence it is largely used as a bleaching agent, and by it many materials can be rendered perfectly white in a few hours; while by the old method of laying them out in the sun, weeks and even months were required. In practice, the cloth, or paper, or other material, is cleansed from any grease and then subjected to the action of the chloridizing agent, which is generally chloride of lime, a substance which gives up its chlorine very easily. This is made by passing chlorine into a chamber on the floor of which is spread freshly slaked lime. This takes up the chlorine, but gives it up again on mere exposure to the air.

An old method of bleaching was by using sulphur fumes. Pliny speaks of this method. In this, the sulphurous acid unites with the coloring matter to a colorless compound, but as it is gradually oxidized to a sulphate and then frees itself from the coloring matter, such bleaching is not permanent. But chlorine destroys the coloring matter by decomposing it.

Chlorine is a powerful disinfecting agent and is used to destroy many offensive gaseous compounds. It does this just as it bleaches, by decomposing the gases, depriving them of their hydrogen. We often see chloride of lime used in a sick apartment or elsewhere. The carbonic acid in the air seizes the lime, forming carbonate of lime, and the chlorine is set free. It is hardly necessary to say that one must be careful not to use too much of this agent.

SINGULAR COLOR.—A pond between this city and Anaheim has, during the last few weeks, excited the attention of the neighboring inhabitants by gradually changing its color, finally assuming a blood-red tinge. A bottle of the water was brought to this city and subjected to analysis by Dr. Hays. The microscope failed to explain the mystery, but application of chemical tests revealed the presence of minute particles of vegetable matter, and precipitated them so that the reddish hue of the water could be distinguished at a distance. Here is an opening for the research of a naturalist.—*Los Angeles News*.

OIL IN LIVERMORE VALLEY.—A letter from Livermore to the *Alameda Advocate* says that there is quite an oil excitement there. A well was sunk 55 feet when a gas commenced to issue which took fire (from a candle) and burned brilliantly. There is a constant roaring going on in the bottom of the well and the water in the well is as blue as indigo, and smells of coal oil and sulphur. The gravel that comes from the bottom of the well is covered with some bright metallic substance, the color of gold. There is one thing sure, if there is nothing else, they have struck a "bully gas mine."

SUBSTITUTE FOR FIRE BRICK.—We noticed yesterday at the railroad depot several specimens of grey rock, resembling at first appearance granite, but weighing little more than lava, which are being sent to T. H. Selby, San Francisco, for the purpose of testing its qualities as a substitute for fire brick. The rock is said to be found in great quantities near the Cerro Gordo mines, in Inyo county, and has been, it is said, used in the furnaces of the celebrated Belshaw Smelting Works, and found to be equal, if not superior to the first-class fire brick.—*Los Angeles News*.

WORK ON THE TUNNEL (through the Sierra) of Lake Tahoe and San Francisco Water Works will be commenced in earnest this spring.

THE Thompson Road Steamer has been doing good work at Stockton.

GOOD HEALTH.

Vaccination.

[Written for the PRESS.]

Vaccination (from the Latin *vacca* a cow,) was discovered and reduced to practice by Dr. Jenner, of Gloucester, England, in the year 1798. Previous to that time, it was estimated, that, at least one-tenth of the deaths among the people were caused by small pox. In 1795 it is stated that thirty-six thousand people died of small pox, in England alone, in one year.

In consideration of the unspeakable benefits which his discovery conferred upon the people of Great Britain and the world, the English Parliament gave him the handsome sum of about one hundred and fifty thousand dollars in gold. This, however, was not his only reward, for history will hand the name of Jenner down through untold generations, for ages to come, as one of the greatest benefactors of mankind. His important discovery has banished, wherever practiced, one of the most fatal diseases to which the human family were subjected; for medical testimony is unanimous in the declaration, that vaccination is the only protection against small pox, and that when the system is fully under the vaccine influence, the protection is perfect.

Long before the discovery of Jenner it was known that in certain districts, cows were affected with a disease called *kine pox* (literally cow pox) similar in almost all respects to small pox, and that the same was sometimes communicated to the hands of persons engaged in milking them. It was also known that those who had at any time previously contracted the *kine pox* from the cow, were protected against epidemic small pox. In the investigation of the subject, Jenner discovered that such persons were also protected against the action of small pox virus inoculated into the circulation. Jenner discovered also, that the small pox virus inoculated into the udder of the cow, produced an eruption in every respect like the *kine pox*, which in turn resembled the small pox pustule, but very much modified in intensity, and that the disease from the cow could be passed into the circulation of the human body at will, where it would work perfect protection against small pox. It was also found that virus taken from the pustules of persons afflicted with *kine pox*, and introduced into the circulation of others, would produce in them the *kine pox* pustule, and that vaccination, from one person to another, was as effectual a protection against small pox, all other things being equal, as where the virus was obtained directly from the cow.

The above constitutes substantially the discovery of Jenner.

Dangers from Vaccination.

Subsequent investigations, however, have shown, that there is one serious objection to virus taken promiscuously from the human subject, as it has been found, that when persons are vaccinated who are afflicted with scrofulous, syphilitic, or syctic dyscrasias, popularly known as "blood diseases," is liable to become incorporated with the vaccine virus, and is capable of being communicated to others having "pure blood," thereby introducing into their systems diseases which are sometimes quite difficult to cure, although generally curable.

There is one other consideration which deserves mention, namely:

Persons who have inherited any such dyscrasia from their parents, that remains latent, may have the same aroused into fearful activity, even sufficient to cause death by the action of and union with pure vaccine matter. All persons therefore whose parents have suffered from any of the aforesaid diseases, or any kind of chronic eruptive disease or from any kind of malignant tumor or ulcer, although apparently perfectly healthy, should, both before and after vaccination, receive proper medical treatment in order to rid the system of any such dyscrasia. After taking the aforesaid primary precautions it then becomes indispensably necessary to use the pure cow pox virus, or if this cannot be obtained, that from persons who have perfectly "pure blood." By so doing perfect safety is secured. So important is the use of pure cow pox virus considered in some parts of Europe that some people

make a regular business of its production for domestic use and for export. The most reliable virus that we have in this country is imported from Germany in very small hermetically-sealed glass tubes.

The medical profession and all other persons are recommended to observe the above precautions most carefully. In order that this article may be understood by everybody, I will explain that *variola* is the name usually employed by medical men for small pox, while *varioid* (literally like variola) is a very mild form of variola which sometimes affects persons after exposure to small pox who have been previously vaccinated, as will be hereafter explained.

I will also explain here that the operations of inoculation and of vaccination are precisely the same, the difference being simply in the kind of virus used.

The various modifications and changes to which the operation may be defined are as follows:

Important Considerations.

1st. Matter from a small pox pustule introduced or inoculated (literally, ingrafted) into the circulation of a person who had never had small pox or been vaccinated, will produce in him genuine small pox. Dilute the matter to any extent with water and the result will be the same.

2d. Matter from a small pox pustule introduced into the udder of the cow will produce in it a pustule, matter from which in turn introduced into the human system will produce genuine *kine pox*.

3d. Matter from a small pox pustule diluted with cows' milk and introduced into the human system will also produce the *kine pox* pustule. This last proposition was verified by Dr. Basil Thiele in 3,000 cases without a single exception.

Observations on many thousands of cases lead to the following conclusions, as a rule, with some exceptions, to wit:

1st. Every person who has not been vaccinated is liable to have small pox if exposed to either variola or varioid.

2d. Vaccination when perfect is a sure protection against small pox for life.

3d. Every person is more or less subject to the action of the vaccine virus.

4th. Persons vaccinated in infancy or childhood will never have small pox; but are liable to have varioid after puberty, if exposed to either variola or varioid. Varioid as a rule never affects any one before puberty.

5th. At puberty the system undergoes a change, which makes vaccination again necessary to protect it against varioid.

6th. Re-vaccination after puberty is a sure protection against varioid.

7th. A third vaccination is never necessary.

8th. Re-vaccination is never necessary if the first operation was performed after puberty.

9th. If every person was perfectly vaccinated before puberty, and re-vaccinated after puberty, small pox would disappear forever from the earth.

E. J. FRAZER, M. D.

108 Stockton St., San Francisco.

[Communicated.]

ICED-WATER APPLICATIONS IN CROUP.—Dr. McFarlane states that having employed this in "at least two hundred cases" of croup, he can confidently recommend it. Folds of linen or muslin, large enough to cover the whole throat and upper part of the sternum, just sufficiently wet dripping, should be covered with several thicknesses of flannel, the whole being secured by a handkerchief. When great cold is wanted, two wet cloths should be alternately applied. When the treatment is commenced early, a few hours may suffice to subdue the disease; but in neglected cases several days may be required.

The above manner of treating croup is undoubtedly the best ever used; and should be known by every mother in the land. To make the cure certain in every case, wrap the patient in a large blanket and put the feet in hot water, to induce perspiration. Then slipping the iced cloths down about the throat and over the chest, without removing the flannels you have the advantage of keeping the inflamed portion cold, while you are assisting nature in keeping the skin active. Two very necessary steps to be taken in the removal of the cause of this disease. L. P. J.

Dr. Poillon, a French physician, says a cold can be cured by inhaling hartshorn. The inhalation by the nose should be seven or eight times in five minutes.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, March 18, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 8, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
111½.

Table of Contents.

Improvement in Hubs and Axles, Ill.; Ore Concentrator, Ill.; Proof-Galley Rack, Ill.; S. F. Gold Diggings.....	161
MECHANICAL PROGRESS.—Joliet Rolling Mills; Balanced Slide Valve for Locomotives; New Ransom Stone; Fibrous and Granular Iron; Railway Gage.....	162
SCIENTIFIC PROGRESS.—Influence of Solar Heat on the Earth's Rotation; Petrography; Resistance of Galvanometer Coil; Washoe; Wyoming Fossils.....	162
Notes on Calaveras County; The Largest Safe-Factory; Using the Microscope; Remarkable Spring.....	163
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Rates.....	164, 165
List of Patents; Notices of Recent Patents; Turbine Wheel Ill.; Lawn Mower, Ill.; Northern Pacific R. R.; Quicksilver; Geology in Oregon.....	166
Chemistry and Its Applications; Oil in Livermore Valley; Fine Brick; Vaccination.....	167
Notices to Correspondents; Assay of Gold Ores; Mechanics' Institute and Industrial Exhibition.....	168
Our Bullion Product; Metacinnabarite; Microscopical.....	168
Fire and Burglar-Proof Safe, Ill.; etc.....	169
DOMESTIC ECONOMY.—Eating without appetite; Domestic Receipts; Mechanical Hints; etc.....	170
Tubular Lantern, Ill.; Band-Sawing Machine, Ill.....	172

Notices to Correspondents.

J. L. Rough & Ready.—Platinum has been found in a large number of places on this coast, and very likely exists in other localities than those already known. Mr. R. M. Raynor, 57 Broad street, New York City, is ready to purchase the platinum sand. The price paid therefor varies, of course, with the amount of platinum contained. For lots which are guaranteed to hold 45 per cent, from \$120 to \$130, gold, will be paid, and perhaps more. Letters addressed directly to Mr. Raynor will be answered fully.

P. H. H. Oakland.—Your question is answered on another page.

Assay of Gold Ores.

Mr. J. M. Merrick, Jr., writes to the *American Chemist* concerning what he has "found in numerous assays an elegant method of reducing the lead button to a size suitable for cupellation." This is scorification with saltpetre. It requires some little practice, but he considers it a valuable adjunct to the present methods.

He puts the button—which is too large to cupel, perhaps 100 to 180 grammes in weight—into a Hessian crucible, and heats the crucible until it is red hot, and the lead is well melted. Then he adds about half the weight (of lead) of potassic nitrate and raises the heat until the crucible, which should be pretty capacious, is *white hot* to the very rim. Stir the contents with an iron rod, and take out the crucible before the oxide of lead has eaten through it; cool and break, and, if necessary, repeat the scorification two or three times. The only points where caution is required, are the keeping the crucible at a full white-heat, and taking it out before there is risk of injury.

"This method," he says, "may be carried a step farther, and the gold obtained as the result of the last scorification; and I know one assayer who frequently determines the value of gold ores in this way, omitting cupellation altogether." We cannot see the advantage of this, and should think it impracticable in the usual gold assays.

Our Bullion Product.

We have been asked what the condition of the controversy is between the Commissioner of Mining Statistics and the *Alta California* and Mr. Garnett, one side of which has been published in the *Alta*, and reference to which was made some time ago in the *Bulletin*. We shall endeavor to answer with impartiality, and to deal fairly with both sides, which we are perhaps in a good position to do as we have no prejudices on either side to influence us one way or the other. We shall merely discuss the merits of the arguments advanced.

The points at issue may be stated as two: Whether Mr. Raymond's estimates of the bullion production of the United States for the year 1869 are correct; and whether he has awarded a sufficient amount for that year to California. The parties are: Mr. Raymond and the *Eng. and Min. Journal* on one side, the *Alta*, and Mr. Garnett on the other.

Mr. Raymond estimated the bullion product for 1869 as \$63,500,000, of which he allowed \$20,000,000 to California.

The *Alta* attacked these generally, but took up more especially the relative proportion awarded California. It gave figures "in illustration of the production of this coast" and also statistics of the production of gold for the whole Union, and of the gold and silver sent to the mint and exported from this city. It then stated, "Thus, instead of California having less than one-third, it has three-fifths of the gold" produced in the whole country. If there is any deduction to be drawn from the figures and this remark, it is that all bullion received here is derived from California. But as the *Alta* afterwards disclaims this, ("We did not give these as the product of California alone, but as the product of the coast"), we cannot see any point in giving the illustration, and must fall back on the general statement that the Commissioner's Report is to be classed among those which are frequently "unintelligent estimates and of very little value." This is rather a sweeping assertion to make without direct support, and we may dismiss this matter. The *Alta's* remarks afterwards do not touch on the California question, but the sum of its argument is that the general production is given with nearly perfect accuracy by the Mint and Custom House, which brings us to the second question. The *Eng. & Min. Journal*, we may remark, corrects Mr. Raymond's California product to \$22,000,000, instead of \$20,000,000, taking the difference from Montana and thus not affecting the total.

The second point is the total production of the U. S. for 1869, and on this Mr. Garnett makes the fight for his side. Mr. Garnett places the production at \$45,000,000, or \$18,500,000 less than Mr. Raymond does. He gets his statistics by a method based on the theory "that native gold is not hoarded as bullion nor used to any extent in the arts. Our entire product of gold, therefore, must either find its way into our mints for coinage, or must be exported as bullion." The *Eng. & Min. Journal* declares the theory wrong and the method fallacious on the grounds that, 1st, it does not accurately obtain the domestic coinage or exports, and 2d, that it does not include gold and silver, native and refined, used in manufactures, shipped in ores and mattes, exported in private hands, hoarded in specimens, bars, etc., or produced but not deposited for coinage or exported.

We do not propose to defend Mr. Garnett's theory or anybody else's, leaving that to the respective authors. Our only province is to speak generally of the arguments advanced in this discussion, and our simplest way at arriving at a conclusion is to enquire whether the reasons advanced by the *Eng. and Min. Journal* will

account for so great a difference as \$18,500,000.

We shall, for the sake of argument, allow a liberal sum, say \$1,000,000, in Mr. Raymond's favor (although the items in the *Eng. & Min. Journal* which are adduced in this connection would rather tend the other way) for the alleged mistake in domestic coinage and exports. On the other hand, we shall allow but little (or nothing, in view of the former allowance) as to the amounts exported in private hands or hoarded in specimens, bars, etc. We shall also allow nothing for the bullion produced but not deposited for coinage or exported, on the ground that this will balance itself from year to year. We have left the amounts shipped in ores and mattes, and used in manufactures, and it is this last item (manufactures) which must be shown to form far the largest part of the \$17,500,000.

Here we have opposing statements on this point. Mr. Garnett does not believe that much bullion is thus used which is not accounted for in the mint reports; the other side states the opposite, and intimates that it has proofs thereof. We should desire to see decisive evidence given in the matter; but for our part we are very doubtful as to whether, to say the least, it can form a large fraction of the sum mentioned above.

It is but fair to Mr. Raymond, in dealing with this question, to say that his figures were called, from the commencement, "estimates," while Mr. Garnett's were more positively stated. At the same time we are told distinctly what Mr. Garnett's method is, while the information on the other side is less precise. It is also but fair to ourselves to say that we have dealt in general terms in this last question, making liberal allowances in order to be able to get at a general conclusion.

Mechanics' Institute.

The quarterly report (for December, January and February) of the President, Mr. Hallidie, shows on the whole a favorable and progressive condition of affairs. The financial status is better, for although the balance on hand, \$664.33, does not seem large, yet during the last three months over \$500 have been paid out for the coming Industrial Fair, and what is particularly gratifying, \$3,000 have been paid on account of the indebtedness of the society, reducing it to \$37,000. Moreover, the building has been painted and otherwise improved.

During the quarter 97 members joined the Institute. While a few leave each month, the average gain monthly is 30. Many valuable documents have been presented and 254 books purchased.

The lectures, commenced in the preceeding quarter by the Mechanic Arts College of the University of Cal., are still in progress, and students and visitors show no lack of interest, there being many applications to fill any vacancies which occur. The Institute generously allows the free use of a room for certain classes which lost their former quarters by the recent burning of the Lincoln school building.

By an amendment to the constitution, persons who have rendered the Institute distinguished services, can now be elected Honorary Members; but no more than ten honorary memberships can be conferred yearly.

The Eighth Industrial Exhibition.

The Trustees are earnestly at work preparing for the Eighth Industrial Exhibition, which is to open on Tuesday, August 8th, and which will probably be the last one for a number of years. Hence unusual efforts are being made to secure its success on a much larger scale than ever before attempted. Over 20,000 circulars have been distributed in the adjoining States and Territories and in the countries

on the Pacific Ocean, inviting co-operation. In reply, many words of encouragement, applications for space and enquiries have been received. Books have been opened for applications, and entries can be made at the Library daily,—from 12 m. to 9 p. m. An agent is canvassing this city, and Mr. Dunn has gone to Japan to induce a representation from that Empire and to obtain the appointment by the government of a commission to report on the exhibition and the manufactures of our coast. The Pacific Mail Steamship Co. has liberally offered to bring across the ocean articles free of charge. The exhibition building will be enlarged. The last Legislature appropriated \$1,500 per year for two years, to be expended in premiums by the society. Cash premiums amounting to \$3,350 are offered, besides those usually given. It is to be hoped that the whole coast will lend efficient aid, for the whole coast will be benefited by a successful exhibition.

Its Importance to the Coast.

We present briefly the substance of the President's remarks on this subject:

I do not think that the importance of these Industrial Fairs to a new country like ours, full of vigor, talent and industry, can be over-estimated. We are situated on the border of a new continent, undeveloped in its resources which we know to be vast and inexhaustible. We are in close proximity to countries densely populated by races whose traditional exclusiveness has kept them until recently in ignorance of the advance of science, art and manufactures, and whose necessities must create a demand for that talent which we can supply, unless in our blind mistake we kill the goose which lays the golden egg,—a mistake, I believe, caused mainly by fear of an overwhelming inroad of that people, a fear groundless because such an invasion over a vast ocean like the Pacific is practically impossible and beyond the records of history.

The Managers hope to see the mechanics, and manufacturers of our coast, at this Fair, show to these people with large wants, what we have and what we can do; to show them that we can turn out as good and as cheap machinery as any other part of the world; that we can furnish them with manufactured articles of all kinds; that we can supply their needs fully and cheaply. We have a huge market if we choose, and there is no reason why we should not erect manufactories to supply this market. We need manufactures here to develop our resources and enrich the community. [But the presence of factories requires a larger agricultural production, and thus is a direct benefit to farmers as well as to other classes of population.]

These Industrial Fairs tend generally to encourage enterprise and nurture industry by demonstrating the needs and the capabilities of our people. It is to be hoped that the people will lend prompt aid to an enterprise which cannot but benefit them.

MICROSCOPICAL.—Mr. J. Beck, of London, gave a very pleasant reception to the S. F. Microscopical Society last Tuesday, at the Cosmopolitan Hotel, when quite a number of persons interested in Microscopy were present. Mr. Beck showed a most exquisite microscope, which was worth somewhere about \$1,500. Under this, specimens of metacinnabarite and cinnabar, gold crystals from Owen's River, copper from the Union mine, silicified wood, and platinum and diamond sand from Coos Bay were examined. By means of the spectroscopic eye-glass attachment the lines of zircon and haematin were shown. The occasion was most pleasant and the visit of Mr. Beck has proved an interesting event of the week.

METACINNABARITE.—At the Redington mine, they have come into large amounts of this mineral, and beautiful specimens are obtained. Mr. Durand, who has charge of the Pioche collection, has given us another specimen (besides that mentioned a few weeks ago), which contains a number of small crystals, too small, however, and indistinct for us to decipher. Mr. Hanks has shown us a number of fine specimens in his cabinet.

Fire and Burglar-Proof Safes.

Our correspondent, W. H. M., has found, he writes us, a safe which is ahead of any he has hitherto seen, and which will afford a decidedly tough nut for any gentleman of burglarious proclivities to pick, or any fire to crack. We publish his communication on another page, giving here the illustration and description of the fire and burglar-proof safe and also of the combination lock.

The fire and burglar-proof safe consists of a fire-proof safe inside which is placed a burglar-proof safe, the walls between the outside and inside boxes being filled with a fire-proof concrete. The outside, or fire-proof safe has in the walls a patent concrete which acts as a non-conductor and is yet free from dampness, and which is claimed to be most perfect in its resistance to heat. The door is provided with a simple contrivance, technically termed a "dog," but more readily understood as a stationary bolt shutting into the side of the safe or door-frame on which the hinges are placed, which securely holds the door when closed, even though the hinges were entirely knocked off, which, however, can not be done, because of a portion of the hinge shutting into the door-frame when the safe is closed, and then acting as a bolt protected from damage by the outer plates. In addition to these "dogs," there are on all safes large enough to admit of them, bolts shutting into the top and bottom from the door, thus guarding upon every side against the possibility of opening the door by destroying its hinges.

Upon each safe door, a double flange or offset is made upon the edge, which presents an effectual bar to the admission of flame or fire when the safe is thus exposed. This is an advantage to which too much importance can not be attached.

In the inside or burglar-proof safe, the walls and door are composed of alternate plates of heavy plate iron, and of crystal steel, welded iron and steel of the finest quality, tempered to such a degree of hardness as to make them impervious to any drill. These alternate plates, after being dovetailed, are put together with heavy machine screws in such a manner as that no screw goes entirely through from the outside to the inside of the box, thus presenting no point at which a drill would not meet with the hardened steel. The whole mass is further secured by heavy conical drill-proof arbors, of hardened steel and iron, the steel being used to prevent drilling, the iron for its toughness, to prevent breaking. These arbors are securely fastened on the inside, so that it is impossible to drive them in. The corners of the safe are also dovetailed, and are further secured with angle-plate iron and steel of various thicknesses and widths on each angle. The walls are of a thickness of from one and a half to five inches, according to the number of plates used in their construction, and are impervious to all attacks.

The door is dovetailed in the same manner as the walls, and when closed its dovetails fit into each other with such exactness that it loses its vulnerability, and is as secure as any other portion of the safe. It has a tenon and groove in the back of the door fitting into corresponding tenons and grooves in the back jamb of the doorway of the safe. Upon it are placed strong wrought-iron bolts, from one and a quarter to two inches in diameter, firmly secured to a heavy wrought-iron frame, which is

held by heavy drill-proof conical bolts passing through every plate of the door and frame, adjusted in such a manner as to hold it secure at all points, when the bolts are thrown forward and locked, while the tenons and grooves in rear of the door hold it there securely against any violence which may be used. As an additional security against the jack-screw or any other force, Mr. Hall has also introduced a system of flat bolts, which, when the door is locked, shoot out from between the plates of the

order. It is fixed on the safe upon a conical drill-proof arbor or shaft, which connects the interior works of the lock with the dial on the outside. It is conical in shape, and is so ingeniously constructed that it can not by any possible means be driven in. It is connected upon the inner extremity with a projecting shoulder, working in a socket of solid steel and iron, so that it is equally impossible to draw it out or move it in the slightest degree from its proper position, by force or otherwise.

by the Hall's Safe and Lock Company, Ohio, concerning whom, further information is given on the third page.

MONTANA MINING IN GEORGIA.—It is not usual for Montanians to go to the Eastern States to work placer mines, but we have an instance of it to record for once. Mr. James Pierce, for the last year or two a miner at Pikes Peak, went home to Gainesville, Georgia, last fall, and writes Mr. Dick Kennon that he has set up his sluice

boxes there and intends to make some money. He has leased a farm, has a ditch that brings in 70 inches of water—enough by reservoiring to run all day. The ground is about five feet deep. Labor is 75 cents per day, without board. With these facilities, Mr. Pierce estimates he can clear \$5 per day to the land by introducing the Montana system of mining. He thinks it a good gold country, and says there are twenty prospect holes in this country to one there. We also learn that Mr. Jos. Bell, another Pilgrim Bar miner, has purchased or leased a farm near the same place, and says "he has as good a thing on mining as he wants."—*New North West.*

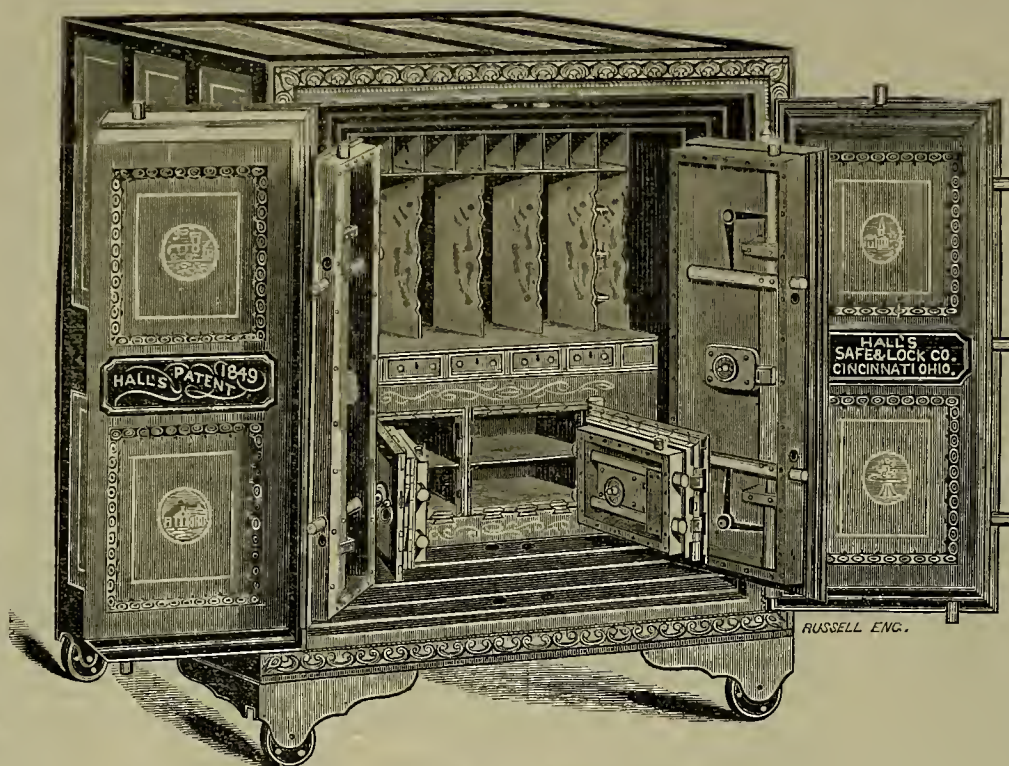
THE CALIFORNIA FILE MANUFACTURING COMPANY, whose works are situated at 437 Brannan street, in this city, inform us that they are now doing a fair business for themselves, and also a good deal of work for the mechanics and farmers of the coast, chiefly in the way of re-cutting old files and in the manufacture of reaper and mower sections, together with knives for all kinds of machines. In their estimation the principal drawback to the business of file re-cutting arises from the inferior quality of much of the work turned out in some of the earlier attempts, from imperfect tools, improper tempering and unskilled labor. While these obstacles are believed to be overcome, a better class of work is performed at greatly reduced rates.

SALT IN KERN COUNTY.

The *Courier* of March 4th, says:—On the east side of Kern Lake is a tract of country about two and a half miles in width, from north to south, and five miles in length to the eastward, which in every part throughout its whole extent affords brine in limitless quantities at a depth of from eight to ten feet. This brine is of greater strength than is usually furnished by brine springs, being equal to that used for the preservation of meats, and, in fact, has often been used for that purpose without concentration. It is found in a tough clayey stratum, beneath which pure fresh water is found. The salt rises to the surface, and in many places, in dry weather, might be gathered in a somewhat impure state in great quantities. At different times salt has been made here, by boiling and solar evaporation, of a quality for purity and strength surpassing any we have ever seen, but its production has never been entered on to any extent, or as a regular business.

CALIFORNIA GLOVE-MAKING.—E. T. McCausland, according to the *Trinity Journal*, of Weaverville, has a glove factory, where he makes a large number of buckskin gloves.

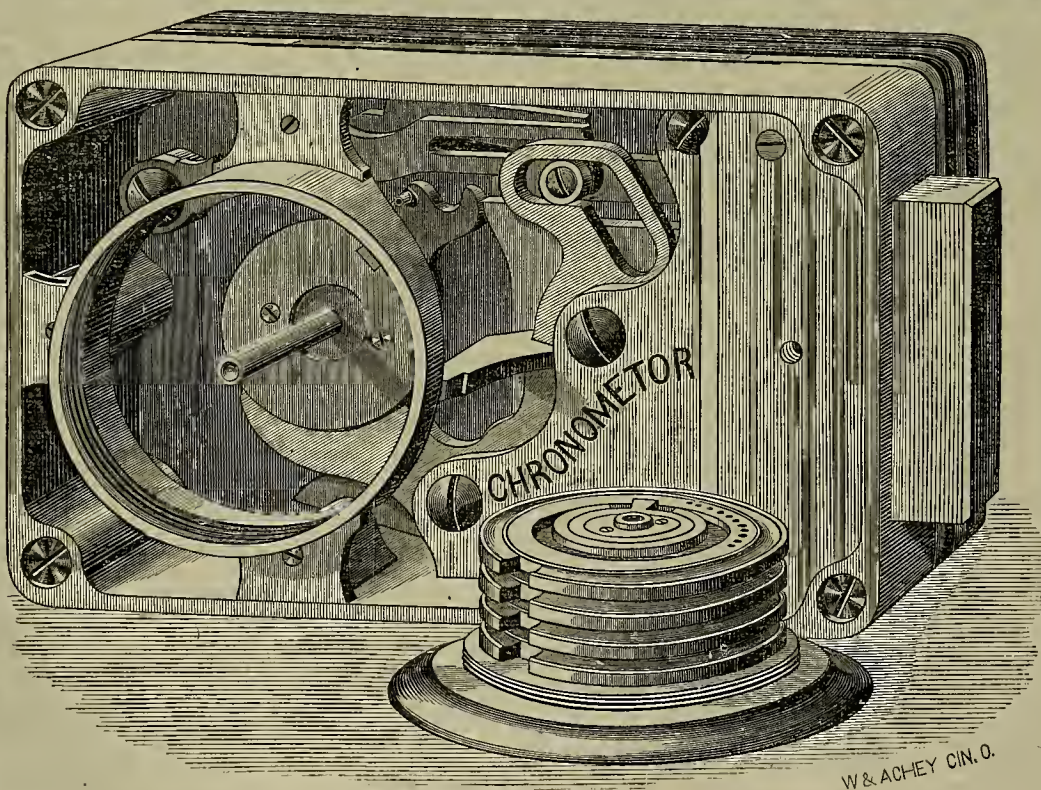
PUGET SOUND.—In Washington Territory, within 50 miles of the Sound, iron ore has been found, with coal and limestone within easy reach.



HALL'S PATENT FIRE AND BURGLAR-PROOF SAFE.

door into cavities of the jambs of the safe, thereby preventing any pressure being brought to bear upon the inside bolts. It is made flush with the outside surface of the safe door, and works so closely that there is no more chance of introducing

earlier attempts, from imperfect tools, improper tempering and unskilled labor. While these obstacles are believed to be



HALL'S PATENT COMBINATION LOCK.

The heavy, round bolts on the inside of the door are thrown into their places by the knob, and are held there by the strong, massive bolt of the lock, the latter having no work to perform but that of throwing its own bolt, which, passing into the jaws or clutch, prevents any pressure which might be attempted by means of the handle from the outside on its sides instead of end.

The lock is one of the very strong points of the safe. It has neither key nor key-hole, is operated by a register-dial, and has no springs which are so liable to get out of

powder or explosive fluids through it than through the solid walls of the safe. The arrangements of the tumblers is such that the changes possible count up in the billions.

It is claimed for these locks that they have never been picked or opened by burglars or experts, although the most skilled expert worked nine days on one of them, and gave it up, forfeiting \$1,000. The company hold themselves in readiness to put from \$1,000 to \$10,000 behind their lock against a like amount.

These safes and locks are manufactured

DOMESTIC ECONOMY.

Eating Without Appetite.

It is wrong to eat without appetite, for it shows there is no gastric juice in the stomach, and that nature does not need food, and there not being any fluid to receive and act upon it, it would remain there to putrefy—the very thought of which should be sufficient to deter any man from eating without an appetite for the remainder of his life. If a topic is taken to what the appetite, it is a mistaken course; for its only result is to cause one to eat more, when already an amount has been eaten beyond what the gastric juice supplied has been able to prepare. The object to be obtained is a larger supply of gastric juice, not of a larger supply of food; and whatever fails to accomplish that essential object fails to have any efficiency toward the cure of dyspeptic disease; and as the formation of gastric juice directly proportioned to the wear and waste of the system, which it is to be the means of supplying, and this wear and waste can only take place as the result of exercise, the point is reached again that the efficient remedy for dyspepsia is work—out-door work—beneficial and successful in direct proportion as it is agreeable, interesting and profitable.

COPPER COOKING UTENSILS.—Copper and brass vessels should not be used for cooking purposes, as poisonous chemical substances are liable to be formed by the action of oils and acids upon the substances of the vessels. The use of such vessels for cooking fruit is especially dangerous, as the acids of fruit act readily upon the metal, forming very poisonous substances.

KEEPING HAM.—Have a sack made of cheap muslin, or domestic, somewhat longer than is required to merely hold the ham. Then gather some broom sedge and chop it finely in your cutting box; or, if you happen to be minus such a contrivance, chop it with a hatchet or axe. Place a few handfuls of this in the bottom of your sack, and then having wrapped a newspaper nicely around your ham, slip it upon the chopped sedge. Proceed next to fill up the sack by ramming your chopped sedge tightly around the ham on all sides—the size of the sack should allow of its being an inch thick. Sew or tie up and the work is done.

Hams put up in this way will keep for years through all kinds of weather, for the sedge is cooling in its effect, it absorbs the moisture attracted by the salt, it hars off the fly. We take it that straw or thoroughly dried grass of almost any kind would act, though we have no experience with anything save broom sedge.

HOW TO MEND RUBBER SHOES.—Several letters having been received asking this question, Professor H. E. Colton prepared the following directions: Get a piece of pure rubber—an old shoe—vulcanized rubber will not do; cut it into small bits. Put it into a bottle and cover to twice its depth with spirits of turpentine or refined coal-tar naphtha—not petroleum naphtha. Stop the bottle and set one side, shaking it frequently. The rubber will soon dissolve. Then take the shoe and press the rip or cut close together, and put on the rubber solution with a camel's hair brush. Continue to apply so fast as it dries until a thorough coating is formed. Spirits of turpentine dissolves the rubber slowest, but forms the most elastic cement.

OAT MEAL AS FOOD.—If mothers would have their children grow up clear eyed and comely, with frames of bone and not of cartilage, with transparent complexions instead of muddy ones, then do not always set before them bread of fine flour and highly seasoned meats, but give them four or five times a week a breakfast of oat meal mush. Do you say they don't like it? Perhaps you don't know how to prepare it properly. The Scotch method of preparing oat meal, is to make a thin mush, a little thicker than gruel, and the boiling should continue three to five minutes (not more), after the thickening is finished. This eaten, with sugar or milk alone, or with syrup, is highly palatable, and is generally liked by children whose tastes are not vitiated.

THE USE OF BUTTERMILK.—Persons who have not been in the habit of drinking buttermilk consider it disagreeable, because it is slightly acid. There is not much nourishment in buttermilk, but the presence of the lactic acid assists the digestion of any food taken with it. The Welsh peasants almost live upon oat-cake and buttermilk. Invalids suffering from indigestion will do well to drink buttermilk at meal-times.

HOW TO MAKE OLD SALT PORK AS SWEET AND TENDER AS FRESH PIG'S MEAT.—There is no humbug about this, though it may look like it. We have tried it, and we know the person who discovered it, Mrs. Washington Champion, who thus has fresh, tender meat all the year round. It is simple but requires some labor. The thing is done by boiling and frying alternately, and finishing off with sweet milk boiling and frying also. Here is the receipt: Boil slowly in several waters till sufficiently freshened. Then boil in another water till reduced to a fry. The fryings should not take long—about fifteen minutes. Fry for a while till about half done or less, so as to get the water well out, else it will be snappish thereafter. Turn off the fat and pour on sweet milk, and fry until brown. Now you have something that is perfectly tender; the oil is not all fried out as is the case with some meat. The lean is tender with the rest. Pork even tainted or otherwise objectionable, may thus be treated to a great advantage. Will each house-wife that reads this receipt try it, and get the benefit of it? It is no humbug.—*Country Gentleman.*

WASH FOR THE HAIR.—"Honey water", as it is generally called, is a most pleasant and excellent wash for the hair, and is used by sponging it into the roots, and also by well brushing the hair with a little fluid at a time. Though called honey-water it is not made with honey, being prepared as follows:—Essence of ambergris, one drachm; essence of musk, one drachm; essence of bergamot, two drachms; oil of cloves, twenty drops; spirit of wine, six ounces; orange flower water, four ounces; distilled water, four ounces; mix altogether, and let them digest fourteen days, shaking ingredients frequently, then filter through porous paper for use. It is not only very useful as a hair-wash, but is an excellent odoriferous perfume.

SALT AS A CONDIMENT.—Salt as an addition, or condiment to food, is undoubtedly beneficial. Its immediate effect is to soften and dissolve the food, and thus render the process of digestion more perfect. It forms one of the constituents of the blood and of the body generally. If it be denied, digestion becomes impaired, and the body weak and liable to disease. It is however, a very different thing to eat salt with food and to live upon salted meats. In the latter case certain chemical effects are exerted upon the meat, and its nutrient constituents, by the salt, which modify considerably the nutriment afforded the body. It is of equal importance to the physical health and well being of the lower animals as to humanity, and as a medical agent it ranks among the most important.

WHY IS SOUP WHOLESOME.—The *London Food Journal* says: Physiologically, soup has great value to those who hurry to and fro from their meals, as it allows an interval of comparative rest to the fainting stomach before the substantial beef and mutton is attacked, rest before solid food being as important as rest after it. Let a hungry merchant or lawyer rush *in medias res*—plunge boldly into roast beef, and what is the result. The defeat is often as precipitate as was the attack. When the body is weary the stomach must be identified with it, and cannot therefore stand the shock of some illly masticated half-pound weight of beef. But if a plateful of light soup be gently insinuated into the system, nourishment will soon be introduced and strength will follow to receive more substantial material.

ASPARAGUS—WHITE AND GREEN.—All who buy this favorite esculent should remember that the white asparagus is not really fit to eat, that it is more or less poisonous, never having had the sun to purify it; besides it costs three or four times as much as the green, as only a small portion of it can be eaten, and this is often acid and unpleasant, while the green asparagus can all be eaten and is healthy—try it.

A FRENCH chemist asserts that if tea be ground like coffee before hot water is poured upon it, it will yield nearly double the amount of its exhilarating qualities. Another writer says: "If you put a piece of lump sugar, the size of a walnut, into a teapot, you will make the tea infuse in half the time." This last we have tried successfully.—*Ex.*

CHEAP PUDDING.—Soak one cup of bread crumbs in one quart of milk two hours, then add four eggs well beaten, one tablespoonful of butter, a little salt, nutmeg, and sweeten to taste. Bake one hour and a half.

BAKED APPLE-DUMPLINGS are delicious. Make them as if for boiling in the usual way; set them in a shallow pan; bake in a hot oven, and serve with hard sauce.

Domestic Receipts.

LIQUID BLUEING.—To one part of Prussian blue add gradually two parts of concentrated muriatic acid. Let the paste stand for twenty-four hours, then add nine parts of water, and bottle it.

The solution of indigo in sulphuric acid is also used for the same purpose. To prepare it, pulverize one ounce of pure indigo, and add it by degrees to four and a half ounces of concentrated sulphuric acid, mixing it well by stirring with a glass rod. If desired, the acid may afterwards be neutralized with carbonate of potash.

YEAST.—The following is recommended by first-rate authority as a method of making good yeast, that will keep for weeks, even in hot weather:—On Monday morning put two ounces of best bale hops into a gallon and a pint of cold water, boil half an hour, strain hot, and dissolve two ounces of finest table salt and half a pound of sugar in the liquor; when cooled to new milk warmth, put one pound of sifted flour into a large basin, make a well in the center of it with the hand, and add the liquor by degrees, stirring round and round with a spoon until the whole of the flour is evenly mixed with the liquor; set the pan containing the liquor on a stool by the stove, in winter time, day and night. In hot weather this is not requisite. On Wednesday morning boil and mash finely three pounds of good potatoes, and mix them with the liquor in the same way as the flour. On Thursday morning there should be a heavy dark scum on the surface. The yeast must now be stirred thoroughly and strained through a sieve or colander into a gallon jug, corked firmly, tied down, and placed in a cool cellar. Shake well before using.

TO REMOVE GREASE FROM SILK.—Rub together fine French chalk and spirits of lavender to the consistency of a thin paste, and apply thoroughly to the spots with the fingers; place a sheet of brown or blotting paper above and below the silk, and smooth it with a moderately heated iron. The French chalk may then be removed by brushing.

VANTY.—Take one egg, a very small pinch of salt, and the same of soda; mix very stiff with flour; then take enough of this stiff paste to spread out to the size of a sauce-plate. When rolled as thin as a wafer, drop it in clean sweet lard. As soon as it blisters, turn quickly. Take out, grate or sprinkle fine white sugar over it to fill the hollows formed by the blisters.

Mechanical Hints.

TO REVIVE THE COLOR OF FADED BLACK CLOTH OR LEATHER.—Take of the best quality of blue galls, four ounces; of logwood, clean sulphate of iron (copperas), clean iron filings and sumac leaves, each one ounce; put the galls, logwood and sumac berries into one quart of the best white wine vinegar, and heat to nearly the boiling point in a sand bath, then add the iron filings and copperas; digest for twenty-four hours, and strain for use. Apply with a sponge.

FURNITURE OIL.—To one quart of linseed oil add one ounce of bruised alkanet root, and boil them together in a glazed earthen vessel until the color is extracted from the root; then cool, and strain for use.

WOOD PRESERVATIVE.—In the *Annales de Genie Civile*, Dr. Reinsah gives the following directions for rendering wood difficult of combustion and preserving it underground. "The wood, unplanned, is to be placed for twenty-four hours in a liquid composed of one part of concentrated silicate of potassa and three of pure water. After being removed, and dried for several days, the wood is again to be soaked in this liquid, and, after being again dried, painted over with a mixture of one part of cement and four parts of the above liquid. When the first coat of this paint is dry, the painting is to be repeated twice. This paint mixture should only be made up in small quantities, as it rapidly becomes dry and hard. Wood thus treated becomes unflammable, and does not decay underground."

COLORLESS LACQUER.—Dissolve two and a half ounces of shellac in one pint of rectified spirits of wine; boil for a few minutes with five ounces of well-burned and recently heated animal charcoal. A small portion of the solution should then be filtered, and if not colorless, more charcoal must be added. When all color is removed, press the liquid through a piece of silk, and afterward filter through fine blotting paper.

MIXING VARNISHES.—When varnishes dry too quickly, by adding a small quantity of finishing varnish the trouble may be remedied.

Life Thoughts.

An old dog cannot alter his way of barking.

A DECEITFUL man is more hurtful than open war.

A nod from a lord is a breakfast for a fool.

He that fears you present, will hate you absent.

It is more easy to praise poverty than to bear it.

A PENNY worth of mirth is worth a pound of sorrow.

GRIEVING for misfortunes is adding gall to wormwood.

HOLD your little twinkling light boldly and honestly; then God will pour in the oil, and make it a blazing torch.

ALWAYS laugh when you can—it is a cheap medicine. Mirthfulness is a philosophy not well understood. It is the sunny side of existence.

Be not affronted at a jest. If one toss salt at thee, thou wilt receive no harm unless thou hast sore places.

WOULD a man frequently calculate his income and expenditure, he would escape many a bitter reflection; for he must be lost to every generous feeling of pride and honorable principle who wantonly incurs debt which he knows he can not discharge.

KIND WORDS! they are blessed things. Speak them every day. Scatter them like sunbeams everywhere. They please others and then return to bless your own ears. Kind words forever.

DO SOMETHING.—Luther says: "The human heart is like a mill-stone when you put wheat under it, it grinds into flour; if you put no wheat in it, it still grinds, but then it is itself it grinds, and slowly wears away."

GOOD sense will preserve us from censoriousness, will lead us to distinguish circumstances, keep us from looking after visionary perfection, and make us see things in their proper light.

The man at the head of the house can mar the happiness of the household, but he cannot make it. That must rest with the woman, and is her greatest privilege.

A KIND HEART.—It is kindly sympathy with human life that enables one to secure happiness. Pride is like an unsilvered glass through which all sights pass, leaving no impression. But sympathy, like a mirror, catches every thing that lives. The whole world makes pictures for a mirror-heart. The best of all is, that a kind heart and a keen eye are never within the sheriff's reach.

COURAGE IN EVERY-DAY LIFE.—Have the courage to discharge a debt while you have the money in your pocket.

Have the courage to do without that which you do not need, however much your eyes covet it.

Have the courage to speak your mind when it is necessary you should do so.

Have the courage to tell a man why you do not lend him your money.

Have the courage to cut the most agreeable acquaintance you have, when you are convinced that he lacks principle. "A friend should bear a friend's infirmities," but not his vices.

Have the courage to show that you respect honesty, by whomsoever exhibited.


Have the courage to wear old clothes until you pay for your new ones.

Sometime.

It is a sweet, sweet song warbled to and fro among the topmost boughs of the heart, and filling the whole air with such joy and gladness as the songs of the birds do when the summer morning comes out of darkness, and day is born on the mountains. We have all possessions in the future, which we call "sometime." Beautiful flowers and singing birds are there, only our hands seldom grasp the one, or our ears hear the other. But oh, reader, be of good cheer. For all the good there is a golden "sometime" when the hills and valleys of time are all passed; when the wear and fever, the disappointment and sorrow of life are over; then there is the place and rest appointed of God. Oh, homestead! over whose roof fall no shadows or even clouds, and over the threshold the voice of sorrow is never heard; built upon the eternal hills, and standing with the spires and pinnacles of celestial beauty among the palm trees of the city on high, those who love God shall rest under thy shadows, where is no more sorrow nor pain, nor sound of weeping "sometime." *George D. Prentice.*

Business Cards.

A NEW PATENT.



If you want a superior set of Texts on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN.
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

GILES B. GRAY.

JAMES M. HAYEN.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
(in Building of Pacific Insurance Co., N. E. corner Call-
ifornia and Leidesdorf streets,
37v16 SAN FRANCISCO.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR

Particular attention paid to all kinds of Fire Work,
such as Boilers, Furnaces, Ovens, Grates, Ranges, &c.
Orders left with C. W. WHITE, 47 Clay Street, JOS.
THORNHILL, 1612 Mason St., near Green, will be
promptly attended to. 24v21-3m

JOHN ROAOH, Optician,
Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONOEE Cashier. 19v16-3m

WM. BASTING.

HENRY KIMBALL.

BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.



SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and White
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street,
26


SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Benie and Main.
For sale—Mshogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
5v1411 SAN FRANCISCO


J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.


THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.
Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.
BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

DR. F. HILLER,
Homeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Sur-
gery and Midwifery. Office—226 Post street, San Fran-
cisco. 24v21-6m

THE AMERICAN SUBMERGED PUMP.



Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.


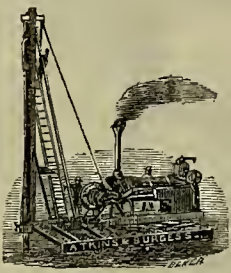
No	0.—Iron, \$15 ;	Iron Galvanized, \$17 ;	Capacity, 500.....	Gallons per Hour.
"	1.—" 25 ;	" 30 ;	1,000 to 1,200.....	" " "
"	2.—" 40 ;	" 45 ;	2,000 to 2,500.....	" " "
"	3.—" 70 ;	" 75 ;	4,000.....	" " "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY:

PACIFIC PUMP MANUFACTURING COMPANY,
318 Pine street, San Francisco.

VULCAN IRON WORKS.
Nos. 80 to 90 North Clinton Street, Chicago, Ill.
ATKINS & BURGESS,
MANUFACTURERS OF
STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL
GEARING AND
GENERAL MACHINERY
CASTINGS
MADE TO ORDER.
Jobbing Promptly Attended to. 3v22-3m



Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

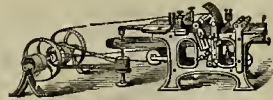
LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint),
SAN FRANCISCO, CAL. 7v21-3x

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

NEVADA METALLURGICAL WORKS,
19 and 21 First st., in Golden State Foundry.
RIOTTE & LUCKHART.
Ores Ore bed, sampled and Assayed.
Having added Pens, Assay office and Chlorination Ap-
paratus to our establishment, we are now prepared to
make working tests by any process, assay ores and pro-
ducts. Returns guaranteed. Answers to all metallur-
gical questions given. 26v21-3m

Richardson & Co., Copper Ore Wharves,
SWANSEA.
RICHARDSON & Co. have been for thirty years established
in Swansea as Agents for the preparation, Sampling, Assay-
ing, and Sale of Copper, Silver, Gold, Lead, Zinc, and all
other Ores and Metals, for which they have extensive Ware-
houses and Wharves under cover, 1,000 feet of Quay Front-
age within the Floating Dock, and the most complete Ma-
chinery and Appliances. They are also prepared to make
advances against Ores in anticipation of realization, and to
guarantee all payments when required. 5v22-1ys

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.
Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters,
Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practi-
cal instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory. 11v21-3m


RUSS PATENT
MONITOR MOLDING MACHINE,
MADE BY
R. BALL & CO., Worcester, Mass,
Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
implements, Furniture, Sash, Blind, and Door Fac-
tories, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-eowly

Travelers' Guide.


CENTRAL PACIFIC RAILROAD.

Passenger Sundays excepted	Express Train Daily.	FEBRUARY 27, 1871.	Express Train Sundays excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.
		San Jose.....	5:40 P.M.
7:58 P.M.	12:10 P.M.	Stockton.....	1:48 P.M.
9:35 P.M.	2:10 P.M.	Sacramento.....	1:11 A.M.
		Marysville.....	9:10 A.M.
		Seattle.....	4:20 A.M.
		Sacramento.....	11:45 A.M.
		Colfax.....	8:45 A.M.
		Reno.....	1:00 A.M.
		Winnemucca.....	4:05 A.M.
		Battle Mountain.....	1:25 P.M.
		Elko.....	8:45 A.M.
		Ogden.....	5:15 P.M.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6 50
8 40, 9 10, D 10 20 and D 11 10, a. m. 12 00, 1 30, D 3 00, 4 00, 5 15
6 45 and B 11 30 p. m.
LEAVE BROOKLYN, B 5 15, B 6 30, 7 40, 8 50 and 10 00 a. m.,
1 30, 2 40, 4 15 and 6 25 p. m.
LEAVE OAKLAND, B 5 25, B 6 40, 7 50, 9 00, 10 10, 11 00 and
11 30 a. m., 1 40, 2 50, 3 50, 5 05 and 6 35 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7 20, E
9 00, H 9 30 and E 11 30 a. m., 1 30, 4 00 and 5 30 p. m.
LEAVE HAYWARD, B 4 15, B 7 00, E 8 30, B 9 00 and E 11 00
a. m. and 3 25 p. m.
LEAVE ALAMEDA, B 5 15, B 7 36, E 9 06, B 9 36 and E 11 36 a.
m., 1 35 and 4 05 p. m.
B Sundays excepted. E Sundays only.
D To Oakland only. C To Fruit Vale only.

T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



The following time will take effect

Saturday.....October 1, 1870

GOING NORTH.—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Callisoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.
------------	-------------	------------	------------

GOING SOUTH.—DAILY (SUNDAYS EXCEPTED).

Train Leave Marysville.	Trains Leave Callisoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco.
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:40 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 313 Montgomery street, or on board
steamer New World. R. S. MATTIE, Superintendent.
S. B. Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
L. C. FOWLER, General Freight and Passenger Agent.
Vallejo October 1, 1870. 15v21-ly

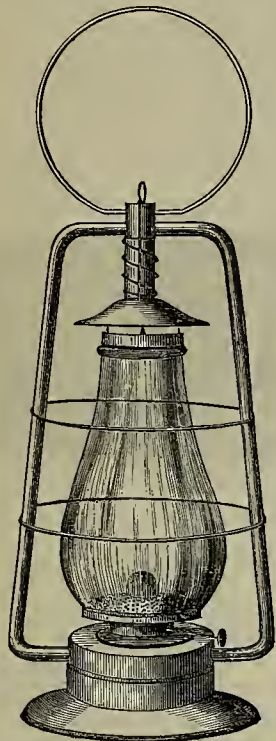
PENNSYLVANIA CENTRAL R. R.
AND
Pittsburgh, Fort Wayne and Chicago R. R.
—IS—
61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York.
WITHOUT CHANGE!
With hut one change to Baltimore, Hartford, Providence,
Springfield, New Haven, Worcester, Boston. And
is the most direct route to Washington city.
Express trains on this line are equipped with WEST-
INGHOUSE PATENT AIR BRAKES,
Boston and New England Passengers
will find this route especially desirable, as it gives them
an opportunity of seeing the finest views among the
Alleghany Mountains, besides visiting Pittsburgh, Phila-
delphia, and New York without extra cost.
All New England Passengers holding through
tickets will be transferred, with their baggage, to Rail
and Boat connections in New York WITHOUT CHARGE.
Through Tickets via this great short route for sale in
San Francisco, at 422 California street, 208 Montgomery
st., 306 Montgomery st., and at Ticket office of Central
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne
Denver and Omaha. Be sure your tickets read via
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chica-
go route. T. L. KIMBALL, Gen'l. West. Pass. Agt.
Chicago, Ill.
J. R. ERRINGER, Jr., Travelling Agent,
4v22-1y San Francisco, Cal.

Notice.

To the Readers of the
SCIENTIFIC PRESS
Special attention is called to the
FURNITURE WAREROOMS
OF
George O. Whitney & Co.,
Nos. 31 317, 319 and 321
PINE STREET, SAN FRANCISCO.
The largest and most complete stock on the Pacific
Coast, At Wholesale and Retail. 8v213m
London Agency.—BATES, HENDY & Co., 4 Old
Jewry, E. C., and Geo. Street, 30 Cornhill, E. C. London
will receive subscriptions and advertisements for the
Press.

The Tubular Lantern.

A most excellent lantern, and one most highly to be recommended, would be that one which, while being convenient to handle, will give a pure, powerful light, emit no offensive or hurtful gas, will not smoke the globe, cannot be made to heat, take fire, or explode, can be easily trimmed and lighted, has no delicate or complicated parts to get out of order, burns the cheapest, most readily obtained and most effective oil, and burns it most economically, and is equally good



indoors and out, at rest and in motion, in calm and in wind.

The manufacturers of the lantern here illustrated claim that their device comes the nearest of any made to satisfying the above demands. They use it for kerosene, because this article is cheaper and much more convenient than oil. The objections to kerosene lanterns are that they are liable to heat, often take fire, sometimes explode, and do not perfectly consume the oil, thus not only wasting that material but also smoking and emitting noxious gases, and giving a poor light. They claim, however, to have obviated these objections by a simple method,—by admitting a regular current of air in and around the burner, producing perfect combustion and a steady and brilliant light, and at the same time keeping the parts cool.

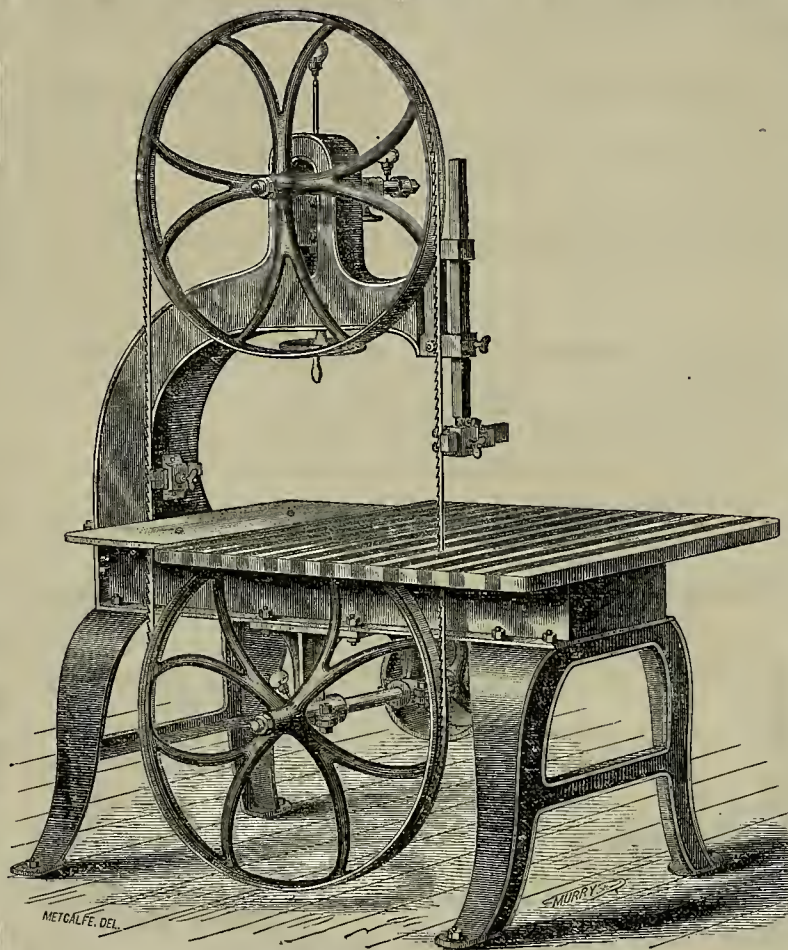
The illustration will give a fair idea of the lantern. At a short distance above the globe is a sort of bell with a pipe above it connecting by two sides pipes with an air chamber, which is placed below and leads into the burner. There is a constant current of air through these pipes and thus the necessary oxygen is supplied through the burner into the flame. The globe rests on a plate, perforated to admit the air, and can be readily placed or removed. By means of the currents through the pipes and the perforated plate, not only is perfect combustion secured but, as we are told, the top of the lantern, globe, burner and oil below are all kept cool, thus obviating the damage of explosion. Moreover, the currents cause the flame to be steady in the wind.

If the wick be turned up very high, in order to get the largest blaze possible, instead of heating and overburning, it will (beyond a certain limit) go out. The same effect will result on overturning the lantern. The only precaution to be observed is to keep the air chamber clear, that the current may not be impeded or stopped.

The lantern is light but strong and dura-

ble, having but few parts liable to get out of order. The simplest way for each person to satisfy himself whether the manufacturer's claims are good, is to go into a store and subject the lantern to a series of experiments; see how bright and clear the flame is, try to blow out the flame, turn the lantern over on its side, place the finger on the cone of the burner to see how hot it may be. Such tests as these will be the most satisfactory of any to the purchaser, as to the illuminating power, freedom from smoke, use in the wind, and safety of the lantern.

The Tubular Lantern can be seen at various places in this city, and is made by the Chicago Manufacturing Company, 43 and 45, Franklin street, Chicago, Ill. They are meeting with a ready sale, wherever introduced, and we are assured that they give the best of satisfaction.



FIRST & PRYBIL'S IMPROVED BAND-SAW.

Improved Band-Saw Machine.

The work of scroll sawing has been revolutionized within the past five or six years by the band (or endless belt) saw. Nearly all "outside" work in first-class shops is now done on these machines. It is calculated that fully three times the amount of work, in a given time, can be done on one of these machines, as on the most improved "jig-saw." American mechanics and wood-workers were prejudiced against their adoption for several years, alleging their impracticability on account of the supposed great expense of running, by breakage of saws. Their adoption by the French wood-workers, however, continued to increase very rapidly, until they became a common tool in nearly all first-class shops. A further investigation by American machinery manufacturers, elicited the fact that the difficulty was not in the machines but in the saws. This was a natural result, as our labor-saving machinery is universally better built, of more approved construction, and not nearly as clumsy as that of foreign manufacture. The trial of the French saw-blade on our American machines proved most satisfactory. The great trouble of breakage of saws was overcome, and it was found that with French-tempered blades (and none others

are now used, for the French are experts in the manufacture and tempering of steel), the belt-saw, with ordinary care, would wear out before breaking.

The demand for the American band-saw machine became general at once. Several patents were immediately taken out, and the machines put into the market. Among the more prominent of these machines are those built by First & Prybil, of New York. We illustrate one of their patterns in this issue of our paper. This machine is built of all iron and steel, except the table, which is black walnut and oak, glued up. The band wheels are 38 inches in diameter, covered with gutta percha, and are given such a speed that the endless saw travels about 3,500 feet a minute. As the upper wheel rests on a heavy rubber spring, and is raised or lowered by the hand-screw at will, a uniform tension is

given to the blade to suit different widths; and ample play is given by the spring and rubber band for contraction or expansion of the saw. Blades from one-eighth to two inches in width may be used, and sawing done to 13 inches in thickness. The patentees say:—"No saw will break except by accident or gross carelessness; certainly not more than from two to four per year—a fact which can be proved by a large number of references. The work is cut smooth, the saw being retained by an improved guard. In case a saw should break, it can be joined again by any one in about ten minutes time at a cost of five cents. We give full instructions for it to all who buy machines, so they cannot fail to make a good joint." A brazing apparatus goes with each machine. The upper wheel may be lowered to such an extent that a foot and a half of the blade may be used up in brazing, and it still do as good service as when first put on.

One hundred of these machines are now running in New York City alone, and about as many more in other parts of the country, including several in San Francisco.

Parties interested in their purchase are referred to Messrs. Berry & Place, the agents in this city of the manufacturers, who keep the different sizes on exhibition at their machinery ware-rooms, 112 and 114 California street, and who doubtless will be pleased to give any further information required.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

W. H. MURRAY—Eastern States.
M. B. STARR—Pacific Coast.
THOS. POYZER—California.
WM. J. CLARK—California.
S. H. HERRING—California.
L. P. MCCARTY—California.
E. J. HOOPER—California.
E. J. HICKS—California.
A. C. KNOX, City Soliciting and Collecting Agent.

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper, or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

SALT LAKE CITY.—Chas. Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate, Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 1c25-ly

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Muller's Brazilian spectacles are acknowledged to be the best in use.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 392 Montgomery street, corner of Pine.

A GOOD LOT FOR SALE VERY CHEAP, 30 feet front by 12 1/2 feet deep, facing the south, on Sacramento street, east of Van Ness Avenue. Very desirable. All but \$1,000 can remain on security, if preferred. Address SCIENTIFIC PRESS OFFICE, 414 Clay street, San Francisco.

E. J. FRASER, M. D.,

No 108 Stockton Street, S. F., Cal.

1000 Farms

In Los Angeles County,

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Ranch," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco, and passing through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1v22-sms

FROM THE WEED Sewing Machine TO \$66. Machines—the WHOLE WORLD being judges—as they are the LAST, so also the BEST! Why? Because the WEED Machines TO work easily \$500 faster, simpler and more VARIETY. Buy the LATEST always. Call and see S. E. Root, 329 Kearns St. S. F., Ast.



The PAIN KILLER is by universal consent allowed to have won for itself a reputation unsurpassed in the history of medical preparations. Its instantaneous effect in the eradication and extinction of Pain in all its various forms incident to the human family, and the unsolicited written and verbal testimony of the masses in its favor, have been and are its own best advertisements. The ingredients of the PAIN KILLER being purely Vegetable, render it a perfectly safe and efficacious remedy taken internally, as well as for external applications, when used according to directions. The stain upon linen from its use is readily removed by washing with alcohol. This Medicine, justly celebrated for the cure of so many of the afflictions incident to the human family, has now been before the public over THIRTY YEARS, and has found its way into almost every corner of the world; and wherever it has been used, the same opinion is expressed of its medicinal properties. In any attack, where prompt action upon the system is required, the Pain Killer is invaluable. Its almost instantaneous effect in Relieving Pain is truly wonderful; and when used according to directions, is true to its name, a PAIN KILLER. 1c4-1m

To Inventors in the Pacific States.

The best, speediest, and surest method for you to obtain patents, file caveats, or transact any other important business with the Patent Office at Washington, or with foreign countries, is through the agency of DEWEY & CO., PUBLISHERS OF THE SCIENTIFIC PRESS, SAN FRANCISCO, an able, responsible, and long-established firm, and the principal agents on this side of the continent. They refer to the thousands of inventors who have patronized them, and to all prominent business men of the Pacific Coast, who are more or less familiar with their reputation as straightforward journalists and patent solicitors and counsellors.

We not only more readily apprehend the points and secure much more fully and quickly the patents for our home inventors, but with the influence of our carefully read and extensively circulated journals, we are enabled to illustrate the intrinsic merits of their patents, and secure a due reward to the inventor, besides serving the public who are more ready to give a fair trial, and adopt a good thing, upon the recommendation of honest and intelligent publishers.

To Obtain a Patent,

A well-constructed model is generally first needed, if the invention can well be illustrated. It must not exceed 12 inches in length or height. When practicable, a smaller model is even more desirable. Paint or engrave the name of the article, and the name of the inventor, and his address upon it.

Send the model (by express or other reliable conveyance), plainly addressed, to "DEWEY & CO., SCIENTIFIC PRESS OFFICE SAN FRANCISCO." At the same time, send a full description, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operations.

Also send \$15 currency, amount of first fee of the Government. The case will be placed on our regular file, the drawings executed, and the documents made up, and soon sent to the inventor for signing.

As soon as signed and returned to us with the fees then due us, it will be sent straightway to the Patent Office at Washington.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case, the applicant has only to send us an exact description, and what is desirable to claim.

For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances for design patents two photographs, with the negative, answer well instead of drawings.

We do not require the personal attendance of the inventor, unless the invention is one of great complication. Usually the business can be well done by correspondence.

For filing a caveat, which affords the inventor protection for one year, we only require a rough sketch, and a clear description of the invention.

It will cost inventors less to have their business thoroughly and speedily done through our agency than to patronize less able and responsible agents.

For further information, send a stamp for our illustrated circular, containing a digest of PATENT LAWS 112 illustrated mechanical movements and HINTS and INSTRUCTIONS regarding the RIGHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAWS of 1870.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Scientific Press and the Pacific Rural Press, San Francisco.

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

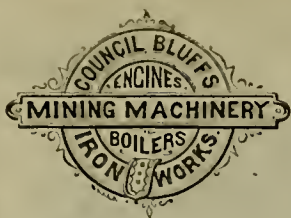
IS NOW IN OPERATION AND MANUFACTURING, UNDER THE Ransom patents, the most perfect SANDSTONE, specimens of which may be seen in the examination of Dr. Stone's Church, now in course of erection, at the corner of Post and Mason streets. For architectural, ornamental and mechanical purposes, this stone surpasses all natural stone of its class.

GARDENSTONES from this factory, which we make of any desired size, may be seen at many of the great mechanical shops in this city, where they are held in high esteem.

The factory is now turning out Architectural Stone, Cemetery Stone, Grindstones, Garden Ornaments, in the way of Vases, Fountains, etc. The nature of the art admits of our moulding the stone in any desirable form, and enables us to compete successfully with all natural stone wrought by hand. In England, where the stone has been manufactured largely for the past fifteen years, it is considered, for durability and strength, to surpass the best English Sandstone. The British Government employs it largely in its public buildings, both at home and in its Colonies; and as we have secured the services of MR. ERNEST L. RANSOM, late Superintendent of the home works at Greenwich, England, we are turning out stone fully equal to the English standard.

For particulars, apply at the Factory, corner Turk and Larkin streets. mal8-tf.

Eastern Advertisements.



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies, costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late Improvements.

Send for prices and information. Address

C. F. HENDRIE, Pres., R. J. CORY, Secy & Treas.

1v22-3m 1/4 C Council Bluffs Iowa.

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

SUCCESSORS TO

WM. J. YOUNG & CO.,

WM. J. YOUNG & SON,

WM. J. YOUNG.



MATHEMATICAL

AND

ENGINEERING

INSTRUMENT MANUFACTURERS

At their old location

No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand.

Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burt's Solar Compass. 4v-22



Over 300 Actual Fires put out with it. More than \$4,000,000.00 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record." F. W. FARWELL, Sec'y, 122 Washington St., Chicago. 3v22-3ms



LEONARD'S

Patent Vapor Jet Burner and Hand Lamps.

Also, Portable Gas Burners and FIXTURES.

County and State Rights for sale.

Send for Circulars.

Manufactured and for sale by

D. LEONARD & CO.,

109 Calhoun Place, Chicago, Illinois. 3v22-3ms

EVERETT HOUSE,

Cor. Clark & Van Buren Streets,

CHICAGO.

This Hotel is centrally located,

Only Three Minutes walk from the

Court House, Post Office, and various places of amusement.

The Chicago, Rock Island and Pacific,

and the Michigan Southern Rail

Road Passenger Depots,

are within one block. The house is NEATLY AND ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City,

with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors. 2v22-4clms

THE FOREMAN
Iron-Clad French
Bur-Stone Mills
Are the best for Grinding or Polishing
Waxes are so done and no better work with
this stone power than any other.

We build complete
MILLS for
Boring, Grinding, and
Polishing
all kinds of work,
and are
Send for Circular.

Stone, 10, 20, 24,
and 30 inches.
Weight 450,
650, 1,000 and
1,500 pounds.
Sell all kinds of
MILLS
FURNISH
ING.

J. A. FOREMAN, AGT.
No. 75 South Canal St.
CHICAGO, ILL.

SAFES

BANK LOCKS. VAULT WORK.

HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE

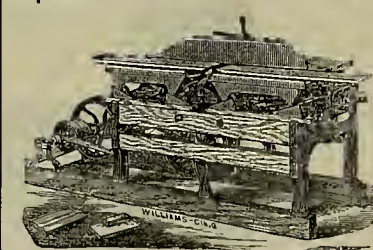
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.

Send for Catalogue and Prices.

mal1-6m

Improved Universal Wood Worker



FOR

Jointing, Babbeting, Beveling, Panel-Raising, Gaining, Planing out Wind, Smoothing, Planing, Circular Moulding, Cornering,

BORING AND ROUTING,

Hand-Matching, Beading, Fluting, Sawing, THICKENING, MAKING, MOULDINGS, Sash, Door and Blind Work, Car Furniture, Etc., Etc.

THE MOST USEFUL,

Economical and Labor-Saving Machine of Modern Invention.

Send for Circular, Etc., to

MCBETH, BENTLEY & MARGEDANT, Manufacturers of Wood Working Machinery, Etc., HAMILTON, OHIO. mal1-6m

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN

China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

STOUT, MILLS & TEMPLE.

PROPRIETORS OF THE

GLOBE IRON WORKS.

DAYTON, OHIO.

Hydraulic ENGINEERS.

Patentees

AND

Manufacturers



OF THE Per cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL CLEARING AND SHAFTING

Of all Descriptions, and General Mill Furnishing.

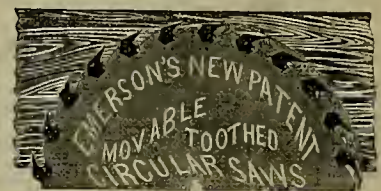
Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular.

mal1-6m

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BRO. & CO. and LIPPENCOTT & CO. Also, SHOVELS, AXES AND SPADES.

All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address HUBBARD, LIPPENCOTT, BAKEWELL & CO., mal1-6p-tf Pittsburgh, Pa.

PORTABLE MILLS.

ORIST MILL, Two Run of Stone Complete for \$1,200.

FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smut-

ters, Corn Shellers, Flour Pack-

ers, Hominy Mills, Belting, Picks

and Mill Work generally.

SEND FOR DESCRIPTIVE PAM- PHLET.

mal1-3m

ISAAC STRAUB & CO., Cincinnati, Ohio.

Established 1843.

LOUIS ESPENSCHIED,

WAGON MANUFACTORY,

No. 1815 Broadway, St. Louis, Missouri.

3v22-6ms

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier. You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame, Economy in the use of Oil, Freedom from Smoke or Smell, Reliability in Wind and Motion, Coolness of Burner and Oil Cup, and Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the

Complete Satisfaction it Gives

to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render all other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.

Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,

MANUFACTURERS OF

TUBULAR KEROSENE & CHAMPION RAILROAD

LANTERNS,

43 AND 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? mal8-3m

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco 2v21-tf

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-q7

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,
SAN FRANCISCOIRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

(Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Roller Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-q7UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Duabner's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities.Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

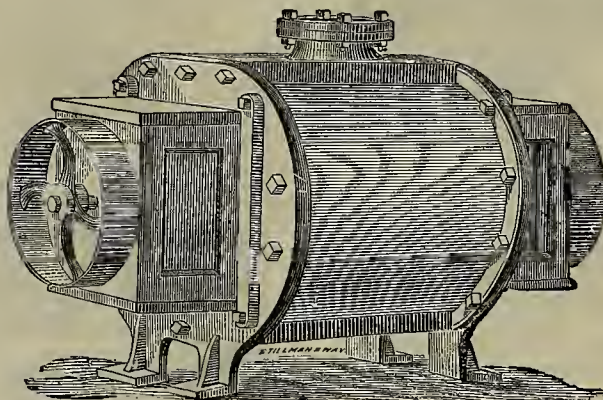
California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 16v19-q7

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864; July
21, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting,

Foundry,

Mining

and

Steamships.

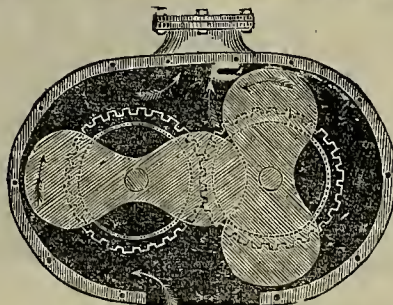
REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

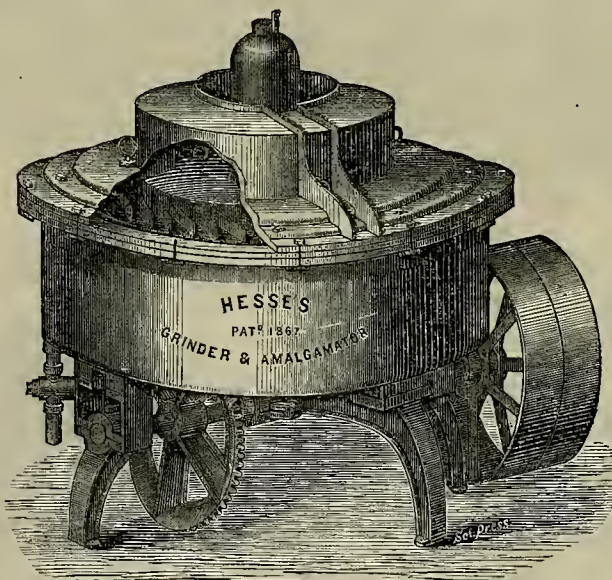
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior
construction, which do not answer all the requirement of the genuine article.Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low
Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

v15-3m

THE HESSE GRINDER AND AMALGAMATOR.

This machine is the most complete and desirable grinder and amalgamator now in use.
Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this
machine. The following are some of its many advantages, viz: The comparatively little power
required to run it; the small wear of metal in comparison with other grinders; the large amount
of work that may be accomplished in a given time, being about three times the amount usually
performed in ordinary pans; the continuous working process, whereby the labor of handling the
ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all
the particles of ore are brought in contact with amalgamating surfaces, and are discharged as
soon as ground to the required degree of fineness, thus saving an unnecessary waste of power
and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly
sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best
condition for roasting. The Hesse machines are successfully working in several important
quartz mills and sulphuret works in this State. For further particulars send for Circular, or ap-
ply to

LORD & PETERS,

304 Battery street, San Francisco, Cal.

fell-tf

GEO. T. PRACY'S
MACHINE WORKS,100 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.
Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames— ALSO —
HAMMERED IRON

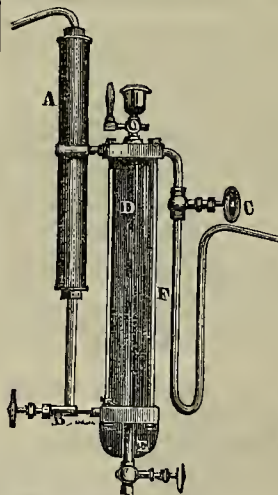
Of every description and size

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

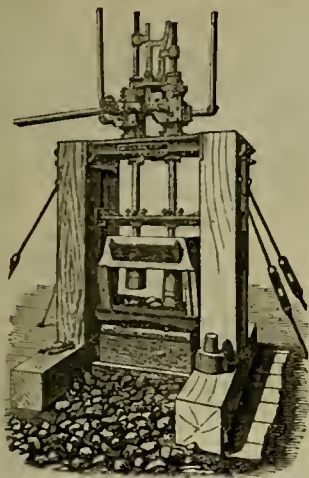
The highest price paid for Scrap Iron 9v143m

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D, is a glass chamber which contains
the lubricant. C, is a valve and cup for introducing the
lubricant into chamber D. F, is the discharge pipe for the
lubricant, provided with an inverted siphon to prevent
steam from coming back from the steam chest or steam
cylinder into the instrument. E, a waste pipe and valve for
drawing waste water from the oil chamber before re-charg-
ing the same. B, a valve and pipe to introduce water under
the lubricant for the purpose of expelling the same; this
pipe is connected to the boiler or steam pipe therefrom. A,
is a steam condensing pipe or vessel, to provide a full supply
of clean and pure water for the ejection of the lubricant
from the oil chamber; the rapidity of action being regulated
by the valves B and G. 16v18-tfSEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Special
attention given to Deep Boring for testing the value
of Mines, Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 26v20-3m

THE WILSON Patent Steam Stamp Mill



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut Street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.

20v19-tf



YALE LOCKS.
SECURITY.
FULL SIZE OF KEY.
BEST & CHEAPEST.

FOR SALE BY THE

HARDWARE TRADE.

YALE LOCK M. F. G. CO., N. Y.

Simplicity, Security, Convenience of Key.

Rim and Mortise Night Latches.

FINE STORE DOOR, CLOSET, CHEST, DESK AND DRAWER LOCKS,

POST OFFICE LOCK-BOXES,

CAST BRASS FRONTS, GLASS DOORS,

PRISON LOOKS,

UNPICKABLE BANK AND SAFE LOCKS.

Pacific Agency.

OSCAR V. GERZABEK, 563 Market Street,
Box 1051, San Francisco.

Commission Merchant and Manufacturers Agent of

GENERAL HARDWARE,

Table and Pocket Cutlery, Eng. and Am. Files Saws &c.

VARNISHES AND JAPANS.

N. B. Send for circular and price list. Lower than the lowest.

24v21-3m

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor Brand Bolt- ing Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.

41 First st., San Francisco.

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,

4v21-ly

San Francisco.

DARLING & CO.,
Importers, General Agents and Commission Merchants.
Machinery, Merchandize and Supplies of every description Purchased and Sold on
Commission,
AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of
75 PER CENT OF OIL.

They are composed of a transparent Glass Cap, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by, four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed **NATHAN & DREYFUS, New York, Jan. 1st., 1871.**

WE ARE ALSO GENERAL AGENTS FOR THE

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

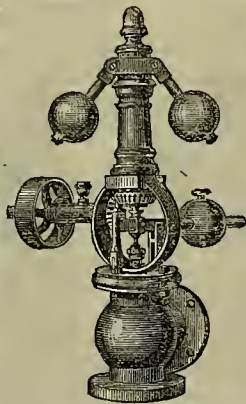
After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of this Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus

We warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK OR FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages.

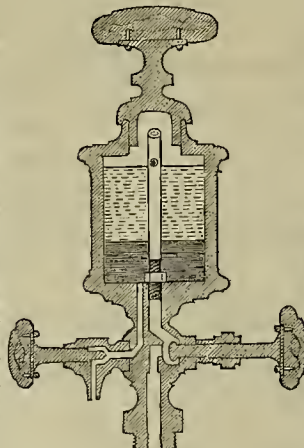
FIRST.—Nothing but clean oil or tallow is admitted into the Cylinder; no time or sediment of any kind.

SECOND.—Its great economy of both tallow and fuel.

THIRD.—It is self-acting, and supplies the lubricating material only while the Engine is in motion.

FOURTH.—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this cup, by its peculiar action, delivers the lubricant



in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

The above Goods are Sold at Factory Rates.

STEAM JET PUMP.

Blackslee & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or starting parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

No infection guaranteed or the money refunded.

Send for Circular.

PARKER & HUNT,
Southwest cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Francisco; KEPP & BARGION, Stockton. Can be seen at McAFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-tf

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be made, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

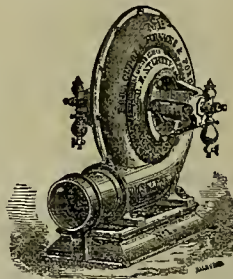
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the different sizes always in store. 4v22

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools. 13 and 15 Fremont street, near Market, San Francisco. 1v17

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen.—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

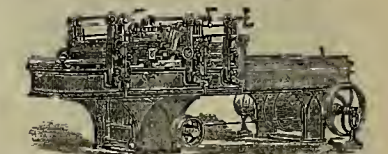
San Francisco Plating Works.

655 Mission Street, between New Montgomery and Third Streets, San Francisco.

E. G. DE NISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. Best means yet discovered for saving fine particles of Gold. 20v21-tf

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE, 112 and 114 California street, San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minors,

SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Shunting Nails, Rudder Braces, Binges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED V. KINGWELL

For Price Lists or information address DARLING & Co., 629, Washington Street,

San Francisco, California.

Traveling Agent—R. K. COLCORD.

5v22eow-6m

Dewey & Co., U. S. and Foreign Patent Solicitors and Counsellors, Scientific Press Office. Principal Agency in the Pacific States. Established 1860.

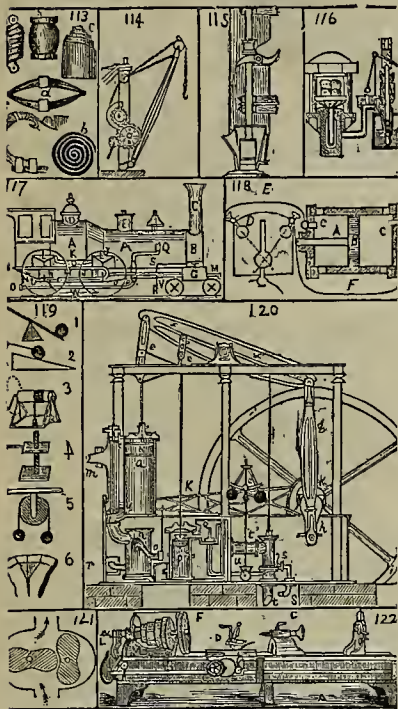


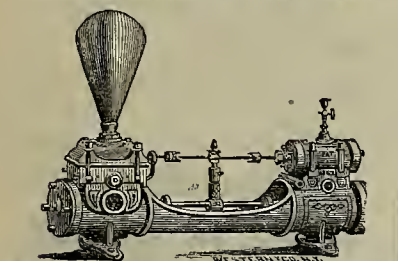
Plate V of Illustrated Mechanical Movements, described in Dewey & Co's 43 page circular of Information for Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

DEWEY & CO., Patent Agents, No. 414 Clay st., San Francisco.

W. T. GARRATT & CO. CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-44
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.

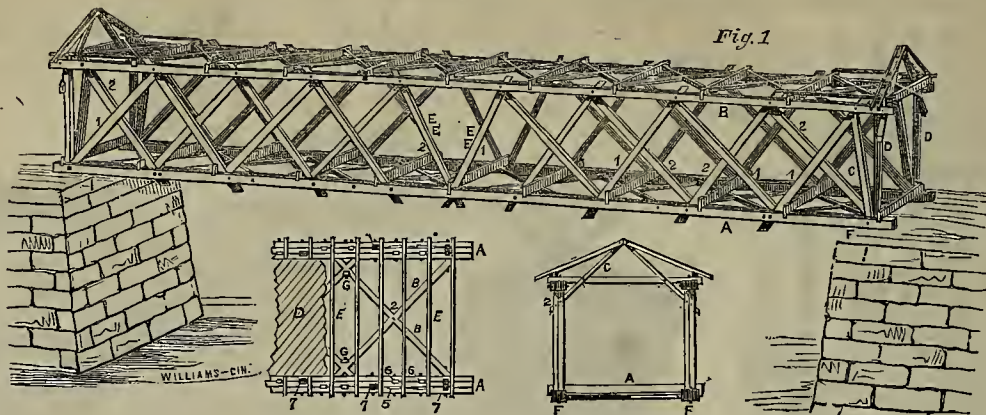


Soldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

STEINWAY & SONS'
Patent Agraffe Pianos,
GRAND, SQUARE AND UPRIGHT.

Pianos to Let.
A. HEYMAN,
1 street, between Sixth and Seventh,
Opposite old Capitol, SACRAMENTO.
ma18-4f

PACIFIC BRIDGE COMPANY,

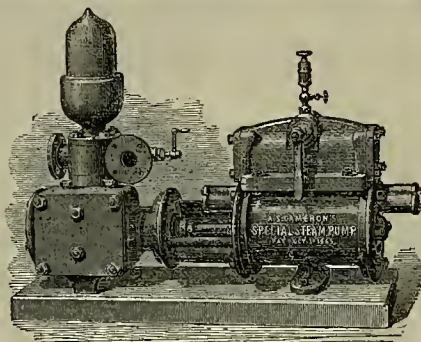


OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition. ma4-2tam

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.



N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

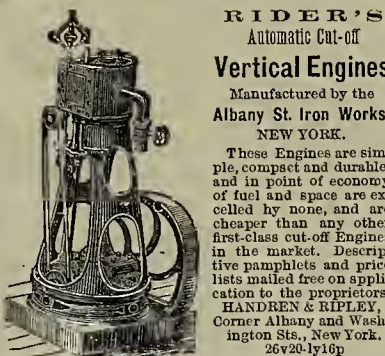
H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE. Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
32 Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

BAIRD'S
BOOKS
FOR PRACTICAL MEN.
My new and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, 82 pages, 8vo., will be sent, free of postage, to any one who will favor me with his address.
HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St., PHILADELPHIA.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.
ash Capital, \$300,000
GOLD COIN
OFFICE, 436 CALIFORNIA STREET.
Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

SECTIONS, BARS, ETC.
A complete assortment of REAPER AND MOWER SECTIONS, BARS, Etc., constantly on hand and made to order.
FILES of every description made and re-cut
—BY THE—
PACIFIC PIPE WORKS,
53 Beale Street, near Mission,
SAN FRANCISCO.
ma18tf N. B. ADAMS, Supt.

For
Steam Pipes
& Boilers
Hair Felting
Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.



RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.
These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors,
HANDREN & RIPLEY,
Corner Albany and Washington Sts., New York.
26v20-ly16p

MAGAZINES.	P. AN.
Harper's Atlantic.....	\$4 00
Godley's New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	
Peterson's.....	3 00
Arthur.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
London Ill. News.....	15 00

HALLIDIE'S
Endless Wire Rope-Way,
For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.
CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,
519 Front street, San Francisco, by contract or otherwise.
Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-4f-16p

O. J. KINO, D. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p
Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

Pacific
Insurance Company
No. 122 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

PLATINUM
Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
26 Bond street, New York.
Platinum Scrap and Ore purchased. 5v20-ly16pl

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 25, 1871.

VOLUME XXII.
Number 12.

Double Saw Mill.

The Lane and Bodley saw mill certainly appears to combine several improvements of detail and convenience which would render it a most desirable machine for its purpose. We present this week an illustration of the standard double saw mill, which, with the description, will give a fair idea of the construction, and enable the reader to form a general judgment as to its merits.

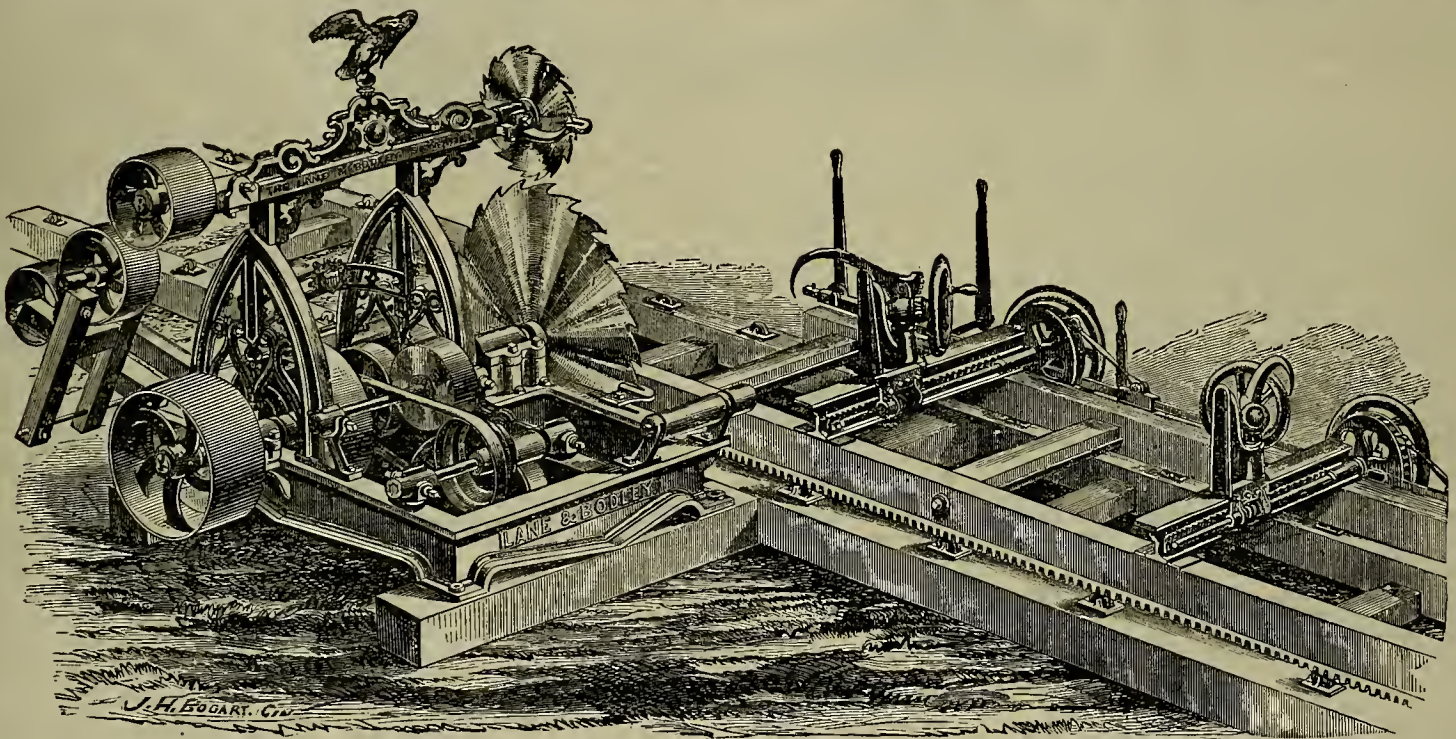
A full description is not requisite, but some of the important peculiarities may be spoken of. One of these prominent points is the friction feed. In most saw mills of the kind, the necessity of having two mo-

To obtain the backward motion, the small leather feed pulley is raised up and an idle pulley is brought to bear equally upon the backing pulley on the saw mandrel and upon the large pulley on the pinion shaft, thus producing a retrograde motion of about 400 feet per minute. As a degree of slip occurs while the carriage is attaining this velocity, there is no fear of undue straining or breakage, as would be the case with unyielding gearing, and the rapid gidding back saves much time. The carriage can be instantly arrested at any point by raising the idle pulley and bringing the feed pulley momentarily into operation, this acting as a powerful brake. The same lever commands both feed and

same direction, and a steady parallel advancement of the knees. The reduction of speed incident to the use of the screw renders the motion of the ratchet wheel rapid in comparison with the advancement of the knees, so that teeth of a heavy pitch represent small fractions upon the head block. The knees may be advanced independently by their respective hand wheels, or simultaneously by the hand lever. By changing a stop pin, placed in one of the holes drilled through the bar near the head lever, the sawyer may vary the thickness of the lumber without loss of time and with certainty. The whole arrangement of the head blocks is such that they will set correctly for boards or for timber, regardless

the details, and are warranted to work well if properly erected and operated. The circular saws are also warranted. By application to the manufacturers, Messrs. Lane and Bodley, John and Wator streets, Cincinnati, any further information, price lists, etc., may be obtained.

UNIVERSITY OF CALIFORNIA.—At the special meeting of the Regents, this week, President Durant reported that there was a fifth class organized at Stockton, under the charge of B. H. Weston, A. M.; and that he had received letters from teachers in San José, Santa Cruz and Grass Valley, requesting that a fifth class be organized at each of these places. He recommended



THE LANE & BODLEY STANDARD DOUBLE SAWMILL.

tions to the carriage,—a slow, variable, forward motion for sawing, and a quick retrograde motion,—gives rise to the use of considerable complication of machinery, with the attendant disadvantages. In the mill under consideration, the use of a friction feed simplifies the machine and obviates many of these difficulties. No backing belt is required. The feed belt drives a feed shaft on which is a small pulley of leather. This is brought, by means of a lever, to bear on a large iron pulley on the pinion shaft (the pinion working into a rack on the under side of the carriage), when a forward motion of the carriage is desired, and thus the carriage is moved. By relaxing the pressure the motion can be reduced when necessary, as when the saw is passing through a knot, and by restoring it the full velocity can be regained. Cone or differential pulleys are used, so that, by removing the belt from one to another, different feeds may be had.

go-back, and is located outside of the carriage, so that the sawyer stands in the proper position to set the head blocks himself, and thus the labor of one or two men (as the case may be) is saved over the number required by the usual arrangement of circular saw mills.

The new simultaneous and independent wrought-iron head blocks form another important feature. The base is a wrought-iron beam of an I section, on the side of which is a double-thread screw of quick pitch, passing through a nut eight inches long on the knee. On the end of the screw is a pinion working into a spur wheel. This wheel also forms the ratchet and crank in one piece. A bar of iron the length of the carriage lies upon bearings at the side of it, and receives a reciprocating motion from the head lever. Connected by a bolt to this bar are two pawls for each head block; the one operating at the top, the other at the bottom, produces a constant rotary motion of the screw in the

of length or distance; a springing log cannot draw forward nor force back the knee; they can be easily removed, are very strong, and permit the sawyer to advance either one, or both, of the ends of the log at pleasure.

The dog, as shown, is automatic, operated by a hand wheel, and rotates horizontally, so that it can be applied in any desired position with ease, security, and rapidity.

The principal object of the upper saw is to have capacity enough to slash and square as large a log as the lower saw can afterwards cut up, which is thus more economically obtained than to add twenty-four or thirty inches to the diameter of the lower saw. In extreme cases both saws can be used throughout the whole log. One saw is placed a little behind the other, so that the cuts reach each other without the saws touching.

There are other points and claims which we have not space to give. The mills are well and substantially constructed in all

that the Superintendent of Public Instruction and Professor Tait give the necessary information, and assist in organizing the classes.

TURTLES.—A new business has opened for San Diego, says the *Union* of that city. Gordon, Stewart & Co. shipped to San Francisco by the last steamer sixty large soft shell turtles from Lower California. Several men are engaged in the business on the lower coast, and regular shipments will be made hereafter.

RAILROADS.—Since the war, Alabama has built 296 miles of railroad, Georgia 231, Tennessee 155, Texas 132, North Carolina 146, South Carolina 128, Virginia 104, Mississippi 128, Arkansas 90, and Florida 44.

On St. Patrick's Day, this city appeared to be half Irish; last Wednesday, it seemed three-quarters German.

MECHANICAL PROGRESS.

THE IRON PROBLEM.—The following is an extract from an article in London *Engineering*:—The percentage of sulphur and phosphorus in the pig iron still limits the applicability of the Bessemer process. "Invention after invention has been made for the purpose of effecting a purification in the Bessemer converter, but the results recorded have been total failures. There is one exception, however, with regard to one of the most recent patents taken out in this country, viz., Mr. Sherman's process of purifying iron by means of iodine. Experiments have been made which afford conclusive evidence that the desired effect can be produced under favorable conditions, and it remains now to be found out how these conditions can be brought under the control of the practical metallurgist, so as to insure a similar favorable result at all times in ordinary commercial practice. There is another patent which has the same purpose in view, taken out by Mr. James Henderson, of New York. The substance employed is fluorine. It is used in the form of fluor-spar for fettling the converter or furnace, and it is also combined with titanium or titaniferous ore. The action of fluor-spar upon iron containing phosphorus has been tried in the laboratory by eminent chemists, but the result was always negative, and therefore little hope is now entertained with regard to this patent. There remains one important field of research open as yet, viz., the production of steel direct from the ore. This at present is almost monopolized by Mr. C. W. Siemens. The difficulties which beset the road to progress in this direction are so great, and all the experiments require so great an amount of scientific knowledge and perseverance, that the problem seems to have been left in Mr. Siemens' hands by universal consent."

ANOTHER ELASTIC WHEEL.—*Engineering* for Feb. 17th describes an elastic wheel for traction engines, designed to do away with the costly rubber tires. We quote: "The wheel consists of a cast-iron nave formed in two parts, with a number of radiating sockets, each part of the nave having one-half of the sockets formed upon it, so that when they are bolted together the sockets shall be complete. Within the sockets are short tubes, the ends of which extend as far as the fixed periphery of the wheel, the spaces between the tubes being filled up to strengthen the construction. Within each of these tubes is placed a solid plunger, with a hemispherical outer end, the inner end being flat, and abutting against spiral springs placed within the tube; a pin passes through each of the plungers, and the ends play up and down in slots cut in the tube. The ends of the plungers are provided with an adjustable foot, which has, within moderate limits, a universal motion, and is kept in place by a pin passing through a double-coned hole in the end of the plunger. The feet are all linked together, sufficient play being left in the bolt-holes of the links to permit the feet to adjust themselves and take a fair bearing. By this arrangement it is expected that the sensitive sole plates of the wheel should adjust themselves exactly to the contour of the road, form as perfect springs as do the rubber tyres, and regulate the amount of bearing surface according to circumstances."

NEW SIGNAL LIGHT FOR RAILWAY TRAINS.—We clip the following description from the Philadelphia correspondence of the *Iron Age*, March 2d:—"In the center of the roof of the rear car, over the rear axle, is placed a square lantern, with alternate panes of red and white glass. This lantern is connected by a shaft with the axle, so that eight revolutions of the axle produces one of the lantern. When the car stops the lantern of course ceases to move. Upon each side of the main lantern are two others, also connected with the axle in such a way that when the train is moving forward a solid red light is shown, and when backward a solid green light. The engineer of a train approaching in the rear can thus tell by these lights whether the train is moving or at a stand, and, if moving, in which direction."

UTILIZING TIN WASTE.—The *Iron Age* says:—"An American inventor has, we are informed, deposited at the General Land Office, at Washington, specimens of pig tin, bar iron and tin salts for chemical and manufacturing uses, reclaimed wholly from otherwise useless scraps of tin plate."

EFFECT OF COLD ON IRON AND STEEL.

In our issue of March 4th we alluded to the series of papers read before the Manchester Society upon this subject, in which the weight of evidence was in favor of the conclusion that reduction of temperature increased rather than diminished the strength of iron and steel. *Engineering*, in reviewing the subject, remarks:—"Practice says, 'Iron and steel do break more frequently when exposed to cold,' while theory, arguing chiefly from the results of experiments on tensile strength made by men of science maintains 'that cold does not affect the strength of iron or steel.' So far there is a direct contradiction; but we know that the term 'strength' is often used in very different senses. * * * There can be little doubt as to the effect of cold in diminishing the resistance to concussion and impact of iron such as is ordinarily employed in the manufacture of rails, and particularly of that in which phosphorus is present to any considerable extent. Steel, on the other hand, appears to be less affected in the manner just mentioned than iron, and it is daily gaining ground as a substitute for iron in cold climates. As to the effect of cold on the tensile strength of steel and iron, we fully agree with the results of experiments, such as those made by M. Styffe and others, which show that the power of these materials to sustain dead weight is rather increased than diminished by cold; but it is difficult to establish any definite relation between tensile strength and resistance to concussion, and more particularly to the effect of numerous small vibrations."

STEAM PLOWING.—At a late meeting of the N. Y. Society of Practical Engineering, Wm. C. Oastler read a paper upon this subject, in which he takes the ground that "direct traction" steam plowing is an *ignis fatuus* which will never be grasped; that under any conceivable circumstances fifty per cent. of the duty of the engine will be wasted, even on level fields. We quote a paragraph from the paper, as reported in the *Artisan* of March 8th: "Absence of economy in cost per acre, consequent upon loss of time in turning the plow at headland; the loss of power and consequent loss of speed at which the engine has to pass over the land; the difficulty and consequent great cost of propelling an engine over or rather through the land to be plowed without reference to its nature or condition, are difficulties inseparable from and enough to make steam-plowing by locomotive traction abortive and unsuccessful; but apart from these mechanical difficulties, there are advantages derivable from the adoption of a correct principle that are not only altogether lost and made of none effect by direct traction, but the splendid results that have followed the rope-traction system are actually turned to a disadvantage. The weight of the heavy steam engine as it passes over the land compresses not only the soil that the plow would turn over in lumps, but leaves, underneath the depth to which the plow has penetrated, a crust or "pan," where water may rest after wet weather, to the injury and oftentimes the destruction of the young plant, the roots of which require moisture, but not a soaking of wet."

AN ENGLISHMAN ON AMERICAN LOCOMOTIVES.—Mr. Brunner, of Montreal, sends to *Engineering* an article on this subject, from which we make a single brief extract: "The cast-iron wheels form another distinctive feature in American practice. The small chilled cast-iron disc wheels of their engine, tender, and car trucks answer admirably well, being cheap, strong and durable at the same time; but, as regards the driving-wheels with hollow spokes and rim, they are, after all, but a primitive contrivance as compared to the solid wrought-iron wheels now manufactured to such perfection by the leading British locomotive makers, and especially by some Belgian and French firms. To turn out a really good wrought-iron wheel, special tools and appliances, and superior manual skill, are indispensable; and it is, perhaps, the lack of these that has prevented the Americans from making an attempt in this direction."

ST. LOUIS IRON MANUFACTURE.—*Van Nostrand* for March, says: The subsidiary iron works in and near the city, are increasing almost monthly. Including the bolt and nut works with a capital of \$150,000, the various foundries, stove works, and other establishments, the capital so invested is not less than \$5,000,000, with a yearly production of \$9,000,000.

SCIENTIFIC PROGRESS.

FAUNA ARGENTINA.—W. H. Flower gives in *Nature* for Feb. 9th, a summary of the first volume of the "Annals of the Public Museum of Buenos Ayres"—the sixth number just completed, being the commencement of a new volume. This is to be a most valuable work. The field is extensive, and its present manager, Dr. Burmeister, the Director of the Museum, is a naturalist of note, formerly Professor of Zoology in the University of Halle. We quote a paragraph from the commencement of Mr. Flower's article, to indicate the importance of the work: "Few districts of the world are so rich in well preserved remains of an extinct fauna of remarkable and interesting character as the neighborhood of the city of Buenos Ayres. The immense alluvial plain of the Argentine Republic is the burial place of the Megatherium, the Mylodon, the Glyptodon, the Macrauchenia, the Toxodon, and many other strange forms of ancient life, whose bones are ever and anon restored to light by the crumbling away of the soft banks of the great rivers which flow into the estuary of the Plata. So abundant, indeed, are they that, as remarked years ago by Darwin, any line whatever drawn across the Pampas would probably cross the skeleton of some extinct animal. Collections of these fossils have at various times been sent to several European museums, and much information has been published upon the nature of the animals to which they belonged, but these observations have been generally made upon imperfect or fragmentary materials. * * * This work promises to be one of the most important contributions yet made to the knowledge of Mammalian zoology, for to this class is the publication mainly restricted. The parts already before us contain not only more complete descriptions than have hitherto been given, of many of the extinct forms mentioned above, but have also several admirable anatomical memoirs on rare or little known living forms, especially of the Cetacea which occur in the estuary of the great river Plata, and in the adjoining part of the Atlantic ocean, a field of research hitherto almost unexplored."

INSECT METAMORPHOSES.—The following is an extract from a new book reviewed in *Nature* by Alfred R. Wallace; an adaptation for English readers of M. Emile Blanchard's work on the above subject. The author is speaking of the parasitic hymenoptera: "All the parasites seek out a caterpillar, a larva, or an insect which suits their purpose, in order to lay an egg within its body. The larva which is born from this egg is nourished by the blood and fat of the victim, whose vital organs it does not touch or injure in any way; for were it to die, the parasite would come to an end also. It is only when the larva is nearly full grown, and is about to undergo its metamorphosis into a pupa, that it appears to know that the life of the victim is not likely to be of much further use. It then devours the internal organs of the unfortunate insect, and undergoes its transformation. The skin of the victim protects some of the pupae of its destroyers after all the inside has been eaten. Nearly all, if not quite all, insects are subject to the attacks of parasitic hymenoptera. Fine, smooth, and brightly colored caterpillars often have a black spot upon their skin, and this is the healed wound of the ovipositor of one of the parasites. Sooner or later the creature is sure to die, and it never reaches the stage of growth when it can lay eggs or reproduce its kind, for before this time the growing larva within destroy it, as it were, by slow consumption. Some affected caterpillars die soon, others nearly reach their full growth, and a few undergo their transformation into the chrysalis state before death. It is, therefore, not an uncommon thing for a butterfly-collector, who hopes to see a fine moth disengage itself from its pupal covering, to be disappointed by the appearance of several little parasitic Hymenoptera that had been living within the chrysalis he has been keeping."

An absolutely perfect galvanic engine, actuated by a perfect battery, would develop only about one-horse power per hour from each pound of zinc consumed in that time. Zinc is much more costly and less efficient than coal, weight for weight.

MICROSCOPIC STRUCTURE OF BASALT.

Dr. F. Zirkel, now of Leipzig, contributes to petrographical literature a small volume upon this subject, which is noticed by Arch. Geikie in *Nature* for Feb. 16th. We give a paragraph from this notice: "The second part deals with the general microscopic structure of basalt-rocks. The common notion regarding that structure has hitherto been that down to its minutest particles basalt is a crystalline rock, that its individual microscopic ingredients mutually impinge on each other, and that the difference between the structure, for example, of granite and basalt consists in little more than in the varying relative size of their component minerals. Prof. Zirkel shows that this notion, which has been founded on mere deduction and not on direct observation, must be changed. He finds that in the majority of the specimens examined by him, there exists between the most minute ingredients a more or less abundant substance, not individualised into crystals, but amorphous, acting like a cement, sometimes glassy in character, sometimes half-glassy, owing to the appearance of hair-like particles, and sometimes so as to present a confused aggregate of darker or lighter minute granules, needles, hair, and crystals. He regards it as hardly possible to doubt that this glassy base in basalt is the residuum of the original magma out of which the recognisable minerals in the rock crystallised, and that it furnishes us with a new proof of the igneous origin of basalt."

VIOLET A PRIMARY COLOR.—F. T. Mott writes *Nature*, Feb. 23d: "One more proof that violet is a primary. Place a hand prism between the eye and the sunlight so as to show the prismatic colors. Then hold a sheet of yellow glass between the prism and the light, and observe the result. The reds and yellows are scarcely altered, the greens are very greatly intensified, the blues and violets are altogether extinguished. If violet had really any red in it the yellow glass, which does not stop the red rays, would change the violet to red, or would show at least some trace of red where the violet had been. Instead of this, the violet is totally stopped out, and the space which it occupied left dark. Wherever the secondary pink appears, this is changed to red by the stopping of the violet rays. The increased strength and brilliancy of the green shows clearly also the primary character of this color. It is usually much weakened in the spectrum by mixture with the far-spreading violets; when this is removed it comes out in full splendor. I commend this little experiment to amateurs; it is simple and interesting. The same effect is produced by throwing the colored spectrum on to a white wall, and holding the yellow glass between the prism and the wall."

REDUCTION OF NITRATE OF SILVER BY CHARCOAL.—C. F. Chandler, in the *American Chemist* for March: "When solid nitrate of silver, either in crystals or sticks, is placed upon glowing charcoal, deflagration takes place, the silver being left in the metallic state, while binoxide of nitrogen and carbonic acid are evolved. The nitrate is fused by the heat of the reaction and sinks into the pores of the charcoal, and as each particle of charcoal is replaced by metallic silver, the structure of the original wood is preserved. With proper management, pieces of silver of any desired size can be prepared, showing the exact structure of the wood. A crystal of nitrate is placed on the end of a piece of charcoal, and the blowpipe flame is directed upon the coal near the crystal to start the reaction. When deflagration begins, crystal after crystal may be added. The nitrate fuses, passes down through the porous metal already reduced until it reaches the glowing coal, where it is reduced. I have prepared in this manner lumps of silver weighing an ounce or more, which exhibit most beautifully the rings of the wood."

ARTIFICIAL PRODUCTION OF ALKALOIDS. H. Schiff has succeeded in preparing artificially the alkaloid coniin. This important discovery indicates the probability of our some day being able to make quinine, morphine, and the like by synthesis. By allowing alcoholic ammonia to act at 212° F. on butyraldehyd a body is formed, which, upon combination with platinum and subsequent distillation, yields an artificial coniin that is possessed of all of the chemical and physiological properties of the native alkaloid.—*Journal of Applied Chemistry*.

CORRESPONDENCE.

Notes of Travel in Stanislaus and Calaveras Counties.

[Written for the Press.]

Knights Ferry and Vicinity.

Knights Ferry, county seat of Stanislaus county, is situated on the west bank of the Stanislaus river, in the foot-hills, 40 miles from Stockton. It contains about 800 inhabitants, and at this writing is as lively as any town in the southern mines. It contains two hotels, three saloons, five stores, three blacksmith shops, one wagon maker, one saddle and harness shop, two shoe shops, one tin shop, one livery stable, one feed stable, three law offices, two harbor shops. Fifty pupils attend the public school daily, and a private school for girls is well attended. The apportionment of the county school fund is \$6 per child (as per census of last year). This county paid into the State Treasury \$30,000 last year.

Buenavista, (nick-named *Scohegan*), situated on the opposite side of the river, has one store, one saloon, one blacksmith shop, one saddle and harness shop, one public school, and one hotel, the latter kept by S. D. Dingley, who is proprietor of 204 acres of fine grazing land, upon which Messrs. Enslens & Dingley have 1,000 head of French and Spanish Merino sheep. The stallion "Messenger," owned by W. H. Martin of Knights Ferry, was foaled in this county; sire White's Messenger, dam Williamson's "Morgan mare," is seven years old, 17½ hands high, and as fine a looking specimen of his kind as there is in the State.

One mile from Knights Ferry is a fine quarry of building stone of which the Stanislaus mills are built, the capacity of which is four run of hurr's. This structure is 44 x 41½ feet on the ground, 3½ stories high, cost \$51,000 to erect, and is run by water power, (turbine wheel). The warehouse connected is 118 x 74 feet, with capacity of storing 3,000 tons of grain. D. W. Tulloch & Co. are the proprietors.

A fine bed of mineral paint exists in the vicinity of town, and one of the best water-powers in the State. The dam of the Stanislaus mills is built of red fir timber, and cost \$6,000. A ditch on each side of the river, carrying the water at least 150 feet above the bed of the river, affords almost unlimited power to drive machinery. There is some talk of erecting woolen mills here. The foot-hills are full of sheep and wool is plentiful. This place has all the facilities of a manufacturing town undeveloped. South, south-east, and south-west, of Knights Ferry is a splendid tract of wheat land, and here may be found some of the largest farmers in the State. R. Threafall & Bro., six miles distant, have this year under cultivation some 10,000 acres,—all in wheat. The covered bridge across the Stanislaus river at this point cost \$14,000, and is a fine specimen of workmanship.

Rich Gulch District.

Rich Gulch District (Calaveras county) is situated seven miles south-west of Mokelumne Hill. The Quartz Glen mine, one mile north of Rich Gulch Flat, has been been worked to a depth of 200 feet, and a tunnel, run in on the lead 800 feet, has just been completed developing a ledge at this point (130 feet below the old works) of twelve feet average thickness. This rock is highly sulphuretted. In a two-years' run, with the use of an ordinary 10-stamp mill to crush the rock, some \$200,000 were taken out in bullion. Mr. H. Atwood is the present proprietor.

Several other apparently good mines are only partially developed for want of capital. The Oak Ridge claim has been opened to a depth of forty feet, shows a vein five feet thick, abounding in sulphurets, and I am informed prospects well. Work will be resumed upon this claim within a few weeks by Messrs. Hoey & Co., its proprietors.

The Poor Man mine, situated twelve miles south-west from Mokelumne Hill, is owned by the Lewis Bros., & Co., (two other partners). This company own 1,200 feet of one of the finest ledges (i. e., best paying) in this county. Their hoisting works, which are very complete, are run by an engine of 35-horse power, now working through a shaft (nearly vertical) 260 feet deep. At this point the ledge is 20 inches thick, and growing larger. At this

point they have opened lately 30 feet, at their 160-foot level—the ledge was well defined at three feet—in the cross-cut, 300 feet from their main shaft. The same machinery that runs their hoisting works also runs their 5-stamp mill, crushing five tons daily (24 hours). The machinery is arranged for 10-stamps, working twenty men regularly. This mine is rich enough not to be for sale. This company use seventy-five pounds of Giant Powder monthly.

The Wolverine mine runs parallel with the above mentioned, and only 100 rods distant, and is owned by the same proprietors. It is 1,000 feet long, has a shaft down 140 feet, and a tunnel in 300 feet. At this point they have a ledge four feet thick that prospects \$30 to the ton, crushing 60 tons. San Francisco parties have thoroughly prospected this mine and are about purchasing at \$35,000.

Wet Gulch mine, three-fourths of a mile south-west of the Poor Man mine, is owned by Messrs. Bandman, Nielson & Co., (of the Giant Powder Co., S. F.) This mine has been thoroughly prospected by shaft, 200 feet deep,—as deep as could be done without machinery, which will likely be put in operation soon. Miners in the vicinity inform me that the rock in this mine will pay considerably above the average.

The Buckley Quartz mine, near Railroad Flat, is owned by John Poe. Being a poor man, he has had to lease the same to get any revenue from it. The lessee, Mr. H. N. Sargent, being in a similar "boat," working with a 6-horse power engine only, will likely have to give up to some more powerful capitalists who can furnish machinery of sufficient power to work successfully. Mr. Poe claims 600 feet of this ledge, which, at a depth of 100 feet, reveals a vein four feet thick that pays \$20 per ton.

Opal mine, at or near Mokelumne Hill, is owned by a French company, which some few years ago successfully worked a very extensive mine of the above description, now lying idle, but for what reason I am not posted. The "opals" are small, but of a very fine luster, and found in abundance in a lava formation, almost on the top of the ground.

Hems in Brief.

J. P. B. Hill, of Fourth Crossing, is the agent of a new idea for a sewing machine, known as the "Wilson Improved Shuttle Machine," with some four or five improvements upon the same. The principal peculiarity is a self-feeding needle. Strength and cheapness are also claimed for the same.

Wyllie & Washburn, of San Andreas, lumber dealers, make and market here some 500,000 feet of lumber of all grades annually. They own and run a steam saw-mill of 20-horse power on O'Neill's creek, some 18 miles east from here.

Disbrow & Holmes, of Mokelumne Hill, manufacture 10,000 gallons of ale annually. This has been their exclusive business for eight years past. Their ale is spoken very highly of.

The "Elongated Paddle Wheel," for steamboats, is the title of an invention by Wm. G. Depew, of Mokelumne Hill (invented February, 1868). He claims that from the fact of its being elongated, it has more propelling surface with a driving wheel of less diameter, and consequently diminishes the power necessary to do the same work. It neither splashes nor lifts water; the paddles revolve upon endless chains. It has the appearance of a very useful invention.

Vineyards—Insects.

Charles Daclin is cultivating some six acres of a vineyard, one and three-quarters miles distant from Chili Gulch. By purchasing some grapes, in connection with what he raises, he manufactures 1,500 gallons of wine annually. While on a visit to this graperly, a few weeks since, Mr. D. showed me a peculiar insect, that he for the first time, had ever seen himself that day. He took it from the root of an apparently very healthy vine, noticing it accidentally while pruning. He claims to have had more or less to do with vines for many years, but says he never saw the like of this before. It is about one-eighth of

an inch thick, and three-fourths of an inch long, has a small white head with two boring horns. Its legs and body otherwise resemble a scorpion on a small scale. He fears it will be very destructive. What is it? [Send us on a specimen preserved in alcohol, for determination.—Eds.]

A. Pillion (Flume House), 3 miles south of Mokelumne Hill, on the Stockton road, has a very finely fitted up vineyard of about 7 acres. He owns 160 acres. On the portion cultivated he has some 15,000 vines of different varieties, and besides what he uses for the table (he keeps public house) he makes some 2,000 gallons of wine and claret annually. Of the latter he makes a very fine article, if your correspondent is any judge.

P. Mariano, next adjoining, is cultivating about 6 acres of vines and making 1,000 gallons of wine annually.

Calaveras County Hospital.

This institution, situated at San Andreas, now bids fair to become a creditable concern. The building has heretofore been in a very dilapidated condition, but is now undergoing repairs which will soon be completed. Its management is under the care of Dr. E. B. Robertson, who appears to be thoroughly conversant with the direction of a hospital. During the quarter ending March 1st. 1871, there were 21 patients, of whom 5 were discharged cured and 4 died, leaving 12. Causes of death were as follows: Syphilis, 1; pneumonia, 1; Chinese leprosy, 1; consumption, 1. Natives of the whole number; United States, 9; Mexico, 3; Chili, 2; China, 3; France, 3; Scotland, 1.

Several remarkable surgical operations have been performed here successfully, of which in some future article I will speak at length. L. P. MC.

Steam Dredges for Placers—A Query.

EDS. PRESS:—Last September, an agent came to my claim and desired me to subscribe for the SCIENTIFIC PRESS. In order to get rid of him, I took the paper for six months. I now send the additional sum for the whole year. I need not say that I like the Press.

If not out of place, will you answer the following question in some issue of your paper: Have steam dredges or steam shovels ever been used in the placer mines of California? Nevada City, Montana.

[We have never heard of their use.—Eds.]

The Utah Mines.

We give on another page a list of claims in Ophir District, Utah. In this connection, we give a section of the mining country south of Salt Lake City, with a brief description, taken from a private letter written by a gentleman who has been visiting the Utah mines. The letter was not intended for publication and pretends to give only the general impressions of the writer; and the section is but a rough pen-and-ink sketch. We think, however, that both will be interesting to our readers. The writer, we may say, is possessed of very considerable knowledge and intelligence, and has much common sense. We give the substance of what he writes.

I have not been able to examine the mining districts as satisfactorily as I could wish, on account of snow storms, but have seen enough to convince me that many of the reports circulated elsewhere are, as usual, exaggerated. There are some good mines, and I have no doubt more will be developed the coming summer, as there is a large extent of mining country.

The deposits are generally very irregular—not to be called veins in a great many instances, but stockworks for the most part—in the limestone which caps the granite. Of course, with all this, the

country can and does abound in mineral wealth. But if you have only one hole in the ground, you don't know what you have at all. The best way of mining here would be for large companies to work several claims. I have not the capital to do this—not even the capital to buy a decent "hole," as the owners have very exalted ideas. I can, perhaps, give you a better idea by a rough profile of the country than by description,—looking south and taking a cross section through the three principal districts in a westerly direction, ten miles south of Salt Lake City.

Little Cottonwood Cañon is denoted by A, and the Emma mine by a. This holds galena and carbonate of lead, and is rich in silver. The Jordan river is denoted by B, and Brigham Cañon by C. The Buell mines, b, contain galena and carbonates, with iron pyrites disseminated all through the ore, and also gold and silver, but the rock is low grade. At D is what is here called "quartzite," which is really a highly silicified limestone. At e are rich chloride mines in limestone, at East Cañon, E, and F is Rush Valley. At East Cañon, singularly enough, the mines on the south side are all chloride (with some lead), but on the north, galena and carbonate, although both are in limestone.

Better Communication with Arizona.

The San Francisco Chamber of Commerce last week adopted a resolution to the effect that the mail facilities between this place and Arizona were totally inadequate, and urging the Postmaster-General to establish a semi-weekly mail. Judge Tweed and Gov. Safford, both of Arizona, addressed the Chamber concerning this matter. The subject was brought under consideration by a petition of a number of leading business firms of this city, which urges the necessity for prompt action, representing the danger that a large portion of the trade would be directed to the East, and concluded as follows:

Your petitioners also represent that the population of Central Arizona, has nearly doubled in the past two years; that the farmers now raise, from the land cultivated in that section, nearly all the grain required by the Government for the use of the army cavalry and for local consumption; that the rich mining interests are being rapidly developed; that the ores from the Vulture mine are worked by a forty-stamp mill, crushing about 65 tons per day, and yielding yearly over half a million dollars in bullion; that the Big Bug mill is now in successful operation, working the ores from the Eugenia lode, and doing well; that the new placer mines lately discovered will furnish employment to a large number of miners, and that the recent discovery of very rich silver ores in the Bradshaw District will soon bring large numbers of miners to that locality.

Within the past year about three hundred farmers have located lands for ranches on Salt River, and in the month of January last about seventy locations were registered in the Land Office at Prescott, and as soon as the farmers can secure the crop now planted, there will be about three hundred more entries made in that land office. This branch of industry will be greatly increased this year, as the lands are rich, and plenty of water for irrigating purposes at hand.

We are advised upon authority we deem reliable that the mail matter now sent through this route averages fully five hundred pounds per week, and that the increased travel cannot now be accommodated by one stage per week.

PETROLEUM DEPOSITS are reported, by a Santa Cruz telegram, to have been lately discovered in the Soquel Augmentation Rancho, near the headwaters of the west branch of Soquel creek. The discovery was made by a party of hunters in observing the sickening effects produced by the waters of a spring from which they drank. A company has been formed for the purpose of working the deposits.

RECLAIMING TULE LAND.—The reclamation project in Yolo and Colusa counties, described and illustrated in the PRESS of Jan. 7, was brought to a successful termination on the 11th inst. The contract for the work has been successfully carried through, under the management of Charles F. Reed, Engineer and Superintendent. The labor of six hundred men has been required since October last, in the prosecution of this important undertaking, whereby 72,000 acres of land, heretofore useless, are now cultivatable.



MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

THE TARSHISH.—*Chronicle*, March 11th: A drift is being run from the face of the lower tunnel to the deposit of rich ore recently struck in the 150-foot level. The concentrator is in daily operation, and Supt. Schwerien has several tons of rich sulphurets washed from the soft ore so abundant in this claim. These will assay \$1,200 to \$3,000 per ton.

GLOBE.—This mill started up yesterday, everything working satisfactory. The furnace will be started on Monday.

EXCHEQUER.—*Miner*, March 11th: This Co., whose mill is on Silver Creek, and mine at the head of Indian Creek, has in contemplation the conversion of the reverberatory furnaces now at the mill into either a Stetefeldt or a Whelpley & Storer.

AMADOR COUNTY.

GOOD NEWS.—*Ledger*, March 11th: Water came through the Volcano ditch, on the north side of that town, last Wednesday, for the first time this winter.

ANOTHER MINE SOLD.—We learn that Jos. Morgan, of the Oneida Mine, has purchased the Mahoney mine at Sutter Creek, and work will soon be commenced.

PLYMOUTH.—Cor. of same: The "Never Sweat" is being worked by Dr. Mayon and Mr. Wilson of Drytown. I learn that from a crushing of 400 tons of rock they realized \$3,700. Their shaft is down 130 feet, with a ledge 12 feet wide. They have a good ten-stamp mill, and everything in fine working order. I learn that the "Old Plymouth" will soon start up again. This shaft is down 500 feet, with ore for a forty stamp mill.

BUTTE COUNTY.

CHEROKEE.—*Chico Enterprise*, March 18: The Spring Valley Canal Co. are running two full heads of water. They have not yet cleaned up, but occasional trials demonstrate the richness of the dirt being washed. This company is making every preparation for the extension of their ditch. At present those mines depending upon reservoirs, are at a stand still, there being no water. The Cherokee Co. have made every arrangement for the bringing of water by means of iron pipe from Butte Creek the coming season.

CALAVERAS COUNTY.

WHISKY SLIDE MINE.—*Chronicle*, March 18th: We learn that Hardigan & Co., who for some time have been running a tunnel to intersect the lead, have finally accomplished their object. The tunnel is 330 feet in length, and cuts the lead at the depth of 100 feet. At that point the lode shows seven feet wide, the rock averaging \$22 per ton.

STRUCK IT.—Horchner & Co., of the Progress mine at Mosquito, have struck rich rock. They have out a large quantity which they intend crushing in the old Vance mill.

GOOD CLAIM.—Hatch & Butterfield, proprietors of a hydraulic claim between Whisky Slide and Mill Valley, recently cleaned up \$1,000, the result of the labor of four men for two weeks.

PALOMO ROCK is paying handsomely. \$10,000 is set as the lowest limit for the next clean up.

RAILROAD FLAT.—Cor. of same: The new mill by W. V. Clark has all the modern improvements. The battery has eight 500-lb stamps. It is crushing one ton for each stamp every 24 hours.

INYO COUNTY.

CERRO GORDO.—The *Carson Register* of 17th notes arrival there of E. Eddy. He says that for some time past men have been arriving at the rate of from 10 to 15 daily. Several heavy mining sales have recently been effected, and the prospects are brighter than those of any other camp this side the Sierra Nevada range. Mr. Eddy and his two partners have just sold to Messrs. Belshaw & Beaudry the San Felipe mine for \$41,000, and four weeks since White & Williams sold their Buena Vista Tunnel mine for \$25,000.

We are informed that Messrs. White, Jackson & Co., the successful competitors for the constructing of the ditch from Owen's River to the Eclipse mill site, have commenced operations.

MARIPOSA COUNTY.

GOING AHEAD.—*Gazette*, March 17th: Stephens & Lambeth, who contracted for the purchase of the Whitlock and Sherlock Co.'s property, have set to work vigorously upon mines and mill with a force of hands and teams.

NEVADA COUNTY.

EUREKA TOWNSHIP.—*Transcript*, March 15th: At Moore's Flat, Knotwell & Atwater have put up a new rig on their claims and have two of Fisher's Hydraulic Chiefs. A few days ago their reservoir was broken by a cave, and it will take ten days to repair damages. The Illinois are putting a new apparatus on their claim, and raising a shaft. The Eagle have discharged two blasts, breaking up the ground, and will commence washing in a few days. Woolsey's Flat has a prospect of being as lively as it was years ago. Four companies are working. The Blue Bank ground was unworked for years until last season, and the owners have a splendid prospect. They run 650 inches of water, and are making a good thing. The Boston Consolidated Co., (Haggarty & Co.), are running a tunnel and stripping the surface. The XIX ground, owned by Marks & Co., is being washed. The banks are 200 feet high and the ground good. Allenburg & Co. are running a hed rock tunnel, putting in a new rig for hydraulic, and will be ready for work in a month. At Orleans Flat prospecting is encouraging. At Eureka gravel prospecting is being done and the quartz interests look promising. The Erie is turning out lots of gold.

CEMENT HILL CO.—Roffe & Stranahan, in their claims newly fitted up for hydraulic, prospected some gravel on the bottom, which yielded a bit to a shovel.

WATER.—Same of 17th: The South Yuba Canal has demand for 1,800 inches per day, or more than all the ditches can convey. The entire sale of water by the Company last week was 31,000 inches, and the largest ever made was only 52,000. Of the amount now supplied by the Co., 2,000 inches are running to Dutch Flat, 1,300 in the Snow Mountain ditch and 400 to Blue Tent in the ridge ditch.

QUARTZ AT EUREKA.—The Black & Young mine is worked, and the mill is in operation. The ledge is of good size and the rock easily taken out. The Erie is paying exceedingly well. The Birchville will be started up this Spring for the purpose of prospecting. The owners of the Jim mine talk of starting up.

OMEGA.—Same of 19th: Nine companies are washing, but the supply of water is not sufficient to run continually. Several run at night and suspend during the day.

BLUE TENT.—All the companies have been at work, but the water was cut off yesterday, as is supposed by some accident to the ditch. The miners expect to have fully as good a season as last year.

BALTIC.—*Grass Valley Union*, March 16th: The company made their initial clean-up yesterday, after a run of two weeks, and took up \$1,200.

RANDOLPH FLAT.—Same of 17th: Webster & Co's claims clean up daily \$160 from the first two boxes of their flume. The first company in the region, the "Rough and Ready," in the latter part of '49, used to realize \$300 to \$600 per day for three men—with rockers. One of the Randolph Co. went home in February, '50 with \$15,000 for his share, after 4½ months' work. These diggings are supposed to be a "break out" from the great Alta Lead, now being prospected by several companies.

THE ALTA HILL MINES.—The Altoona Co's steam machinery will start up Wednesday. The shaft is down 214 feet, a sump of ten feet being in bed rock. The depth to bed rock is 204 feet, the lowest yet struck in Alta Hill, and the indications are, therefore, that the old river bed is under the Altoona's location. In the bottom of the shaft a bed of gravel was struck two feet thick, eight feet long and four feet wide, which gave something over \$49, and enough of the gravel was taken from the bottom of the shaft to yield \$5 more. The prospects are very flattering. The Co. has a surplus in the treasury. Altoona Co. No. 1, will start work on their shaft soon. Altoona No. 2 will await the developments made by the first. Hope Co. takes out more than enough to pay expenses, dead work underground and all. The McSorley Co. is piping at a rich bank of gravel. Picayune Co. is running a hed-rock tunnel.

PLACER COUNTY.

A BIG MINE.—*Herald*, March 18th: The St. Patrick has about finished a clean up of 194½ tons of rock, crushed at the Empire Mill, last evening, which yielded some \$16,000 or \$80 per ton. This rock has been taken out as the Co. went down at a depth of 200 feet where the ledge is fully three feet thick.

STARTING TO WORK.—Mr. Slosson the Sup. has again commenced work on the Minerica mine, west of here. He has got the shaft pumped dry and is at work in the bottom.

SHIPLEY.—Baptist Stinger has the first western extension on this ledge, of 1,000 feet. He has his main shaft down seventy feet, where he finds the ledge five feet thick, and growing thicker and richer. He had thirty-eight tons of quartz milled at the Shipley mill last week which yielded \$1,140, or \$30 per ton. He is now drifting on this monster ledge at the above depth and taking out rock that he believes will pay \$50 to the ton.

SAN BERNARDINO COUNTY.

RICH ORE.—*Guardian*, March 11th: A wagon load of ore from the "Hard Nut" Mine, Clark District, arrived in town a few days ago for shipment to San Francisco. This ore we are informed is exceedingly rich, assaying from \$6,000 to \$8,000, a ton.

SIERRA COUNTY.

ITEMS.—*Messenger* March 18th: The Keystone resumed operations this week. The claims on Badger Hill, are being hydraulized.

SISKIYOU COUNTY.

ORO FINO.—*Yreka Union*, March 15th: We learn that the miners have an abundance of water at present.

Nevada.

COPE DISTRICT.

ITEMS.—*Avalanche*, March 11th: Norton's mill has commenced on Excelsior rock. The Robert Emmet Co. are working two shifts and getting out fine ore. The Argenta Co's shaft is down 190 feet. The stamps for Vance's mill are on the road from Elko.

SMELTING FURNACE.—Mr. Robbins started up his smelting furnace on Wednesday, on mixed ore, but after running 22 hours, the lining burned out. During the 22 hours 69 bars of metal were produced, averaging 110 pounds each. Work will be resumed as soon as repairs are made.

ELY DISTRICT.

MILLS.—*Record*, March 12th: All the mills at Bullionville are kept busy. There is room for more on custom work. Raymond Brothers' 5-stamper never stops. Raymond & Ely Co's 10-stamper runs steadily. The Chicago mill has been running 12 days. All the machinery works well and they are turning out bullion at a rapid rate. The Meadow Valley Co's mill is constantly running on ore from its own mines.

BULLION.—The shipments per Wells, Fargo & Co. from February 21st to March 9th amount to \$78,504.14.

Same of 16th gives the figures of the next following week, to March 15th, at \$23,861.46.

CRUDE BULLION.—Nine hundred pounds was received by Cabill, on Wednesday, from the Chicago mill, for melting and assaying. This is the first lot sent to Pioche from that mill, and is worth \$14,000—a fair turn out for 13 days' work.

EUREKA DISTRICT.

GOOD HOPE.—*Sentinel*, March 18th: The mine is looking well at 40 feet deep. Heynes is in possession, and is putting the shaft down rapidly in good ore.

LUPITA.—The broken ground has been passed, and what seems to be the main body of ore is fairly opened, with a good breast from which four or five men can easily take out 15 to 20 tons of ore daily.

RICHMOND.—A large body of ore has been discovered that will render it easy for eight men to take out enough to keep the furnace running. The new furnace will be running in a few days.

RE-DISCOVERY.—Some time since Paige & Corwin gave up the working of their mine at Secret Cañon, on account of the depth and the thinness of the ore. Commencing to drift 30 feet from the surface, after running a few feet they struck ore, and following it they have now as good as ever.

BULLION.—From 1st to 15th March were shipped by the Eureka Cons. Co. 200 tons of bullion, averaging in value \$360, and there are now about 30 tons awaiting shipment. The Buttercup, in the same time, has shipped 30 tons, and has a small amount on hand. The furnaces are running constantly. The Tilton works have been running for 10 days and are piling up the bullion, having about 40 tons for shipment.

REESE RIVER.

The *Reveille* says the business men of Austin have purchased the Knickerbocker mill, near Ione, and will move it at once to their own city. A site has been secured, and the purchase money for the mill has been paid. A joint stock company is now to be formed to pay the expense of moving, of adding the furnace necessary, and of commencing operations. All classes are appealed to, to aid the enterprise and put money in their purses by taking stock.

RICH STRIKE AT BELMONT.—Same of

17th: We have received a letter which informs us that a very rich strike has been made in the El Dorado South mine. Three hundred and forty feet below the surface the entire lode is permeated with dark red chloride and black sulphurets of silver of exceeding richness. Assays yield as follows: chloride, \$801.25; sulphurets, \$2,175.64 per ton.

WASHOE.

CHOLLAR-POTOSI.—*Enterprise*, March 19: Daily yield 280 tons, mostly from the Belvidere section, which bids fair to hold out for many months. Little blasting is done, and no assorting. The regular hullion yield is immense.

CROWN POINT.—The newly developed ore body in the lower levels south of the shaft proves to be more and more extensive, and improving in quality. The width is perhaps 25 feet on the average. The mine is yielding over 100 tons of ore per day at present.

YELLOW JACKET.—Daily yield 185 tons, milling \$35 per ton on the average, principally from the 700, 800, 900 and 1,000-foot levels.

HALE AND NORCROSS.—Daily yield 230 tons, principally from the eighth level, with forty tons from the 175-foot level, and seven or eight from the 535-foot. The general appearance of the mine is encouraging. Receipts for February \$121,954.

BELCHER.—The winze below the 420-foot level is down 60 feet below the track floor and the bottom is in quartz, assaying \$20 per ton. A cross-cut west is being run in the hope of finding something better. The west drift from the 420-foot level is in favorable looking quartz.

SUCCOR.—This mine has of late come into more prominence, owing to increased product of good ore and better bullion yield. The amount of good pay ore is enormous. The White ledge in this mine is a most important discovery, and experts declare it to be a portion of the old Comstock.

IMPERIAL.—The cross-cut from the south drift into the Holmes ground, belonging to the company, shows good-looking quartz with spots of metal.

SAVAGE.—Daily yield 100 tons of average assay value \$30. A great deal of prospecting is being carried forward. Receipts for February, \$95,600.

VIRGINIA CONSOLIDATED.—The cross-cut west in the old California ground is in quartz and porphyry. Prospects are favorable.

SIERRA NEVADA.—Both mills are kept steadily running on good ore from the ledge and surface gravel deposits.

GOULD AND CURRY.—The ore and bullion yield of this mine is limited at present, but a vast amount of prospecting is being done.

KENTUCK.—The repairs to the shaft being about concluded, the production of ore will be commenced forthwith.

SUTRO TUNNEL.—Yesterday this tunnel was in 1,826 feet. It is still very wet, much water flowing through it, but good progress is made.

DANEY.—The drift from the main drift is in 120 feet and good progress is made. The rock is getting softer.

OVERMAN.—This mine is yielding about the usual amount of ore. Receipts for February, \$22,000.

OPHIR.—The up-rise toward the old 9th level is still slowly progressing.

Arizona.

ITEMS.—Prescott *Miner*, March 4th: The news from all the districts is good. More rich silver ledges have been found in Bradshaw, and the excitement is increasing. Men, wagons and pack-trains are constantly leaving Prescott, and Tiger, Eclipse and other ledges cannot be purchased for less than \$100 per foot. Shafts are being sunk upon several ledges. The Big Bug mill is turning out plenty of gold. A forty or fifty-stamp mill will soon be erected. Very rich ore has been struck in the Eugenie mine. In Walker District, Mr. Pointer is cranking ore in arastras, by water power. Shelton and others are taking out ore. Judge Howard has just received a letter from the Vulture mine, which states that a piece of "rock," 14 inches long, 10 wide, and 10 thick, containing about one thousand dollars in gold, was recently found. A company was preparing to start the little mill. The 40-stamp mill was grinding away. Our placer miners have plenty of water, and are making money. Returns from Bradshaw ore sent to San Francisco, for assay, have been received here, and range from \$100 to \$5,000 per ton.

LEE & SCOTT.—The Tucson *Citizen* of 4th says of this mine, 15 miles west of town: There are eight men at work upon it. There is a shaft 150 feet deep, which has been sunk at no expense above the proceeds.

The ore has been worked enough to show that the mine would prove a choice investment for capitalists.

Colorado.

THE WILLARD PROCESS.—The Boulder News of March 15th, says this is a success. Notaway ore yielded \$58 clear of all expenses by it; it has been valueless by any other treatment. Mr. W. will soon put up a mill with 15 furnaces.

GILPIN COUNTY TREASURER.—Shipment of February, was, in coin, \$120,000, the largest monthly since November, '69. The largest amount in any one month of 1870, was that of July, \$118,700. So says the Herald.

ITEMS.—Herald, 4th: The Roderick Dhu keeps 35 stamps of the New York mill going on ore which yields from three to four ounces of gold per cord. The Fiske employs 40 stamps; Gregory Second, 30; Kansas, 30; California, 30; Burroughs, 30; Frize, 29. Nearly all the Black Hawk mills are running, and have a supply of ore on hand. The amount of quartz crushed and of gold shipped is usually large for this season of the year.

PRIZE LODE.—Chamberlain, Buck & Co. are obtaining satisfactory results. The work is all done by contract, and two cords of mill ore are raised daily, besides the first-class ore.

Idaho.

ITEMS.—Avalanche March 11th: The Cosmos mill started up again yesterday on Chariot ore. Wells, Fargo & Co. shipped this week 8 bars of bullion, valued at \$27, \$23.57. The Webfoot mill is running on Oro Fino ore, said to be yielding handsomely. It is reported that the Golden Chariot Company will build a 40-stamp mill next summer. The Morning Star mill, idle nearly three years, will be started up as soon as repairs can be made. Smythe & Co. have been working the Malaveras mine and taking out rich gold ore. Mike Hyde has increased his force on the Peck & Porter and is taking out ore in abundance. The Fairview mill will start up again on the 20th inst.

MINING WAR.—Last Sunday a party consisting of half a dozen armed men took possession of the Mahogany mine. The jumpers claim that they are bona fide owners having bonded it to L. W. Greenwell, who would neither pay the money specified nor give up the ground.

NOR BAY.—During the first 25 days of February, Golden Chariot bullion to the amount of \$100,848.21 was shipped to San Francisco.

PIONEER.—Boise News, March 11th: Col. Stevenson informs us that the ore extracted this winter from the quartz mine at Summit Flat, owned by Clarkson and Brown, is the richest he has ever seen.

SNAKE RIVER.—The miners are reported as making good wages even at this season.

Idaho.

ATLANTA.—Cor. of Statesman, March 7th: Work progressing slowly on the Lancy edge. It is now run under the name of the Stanley company. In Yuba there are two companies working, the Newton boys and Wm. Doolin. They have struck a very rich ledge. There is a streak in it from four to six inches wide that prospects from one to five dollars to the pound. This place will need a number of men in April when the placer miners commence work.

Montana.

[A portion of the following matter was in type last week, but was crowded out. Ens. Press.]

BULLION FROM FLINT CREEK.—Helena Gazette, March 6th: We saw yesterday in the window of the First National Bank, 613 pounds, or rather 8,923 60-100 ounces of silver, from the St. Louis and Montana Mining Co.'s mill at Phillipsburg. This is the fifth shipment made from this mill since the commencement of this year, and some of them have been much larger than the above.

UNIONVILLE.—Work is going on in all the mines, and all the mills are running, or preparing to do so. Hendrie's mill has been crushing for two or three weeks past. The National mill is pounding away, the new Cornish pump keeping the entire lode drained without half trying. The IXL Co. are putting up new hoisting works. We understood that they would start up to-day or Monday. The Columbia mill is running 30 stamps, and the machinery works to perfection. The Harvey mill is running on custom rock.

SLUICING ALL WINTER.—From Mr. Nick Murphy, of Silver Creek, in this county, we learn that on their claim on that creek, they have continued to sluice all winter, washing the dirt as fast as it was taken out.

QUARTZ CREEK.—Missoula Pioneer, March 2d: On claim No. 17 (upper discovery) better pay has been struck; a piece of gold worth \$19.25, and one worth \$2.80, were picked up recently in this claim.

CLEAN UPS.—Montanian, Feb. 22d: Mr. John How's mill at Brown's Gulch, returns 183 ounces of bullion last week. One ton of rock from the Pacific lode was crushed, and 23 ounces of bullion, worth \$10 per ounce, obtained. The Oro Cacho mine at Summit gave 75 ounces of retort, last clean-up.

BANNACK.—Cor. of same: Maysville has four quartz mills and one smelting furnace. All will start up on the opening of spring. At Jimmie's Bar, below, miners are drifting out pay dirt and piling it up for sluicing. At Jerusalem I met Mr. Brous and others making preparations for work. White's Bar is said to be rich, but lacks water. Wilson, Rote & Co., are constructing a large ditch. Quartz is creating considerable excitement. Andy Murray, on the Blue Wing, has a shaft 150 feet deep, and a crevice 1 1/2 to 2 feet in width. The average yield per ton is \$100 to \$150. The Kent lode has a shaft 24 feet deep; the ledge is five feet wide, and the ore yields \$150 per ton.

BANNACK.—Cor. of Helena Herald, Feb. 23d: This is the mildest winter since '62; yet there is more snow than for the two last winters. A prosperous mining season seems now certain. Quartz mining also will take a new impetus. Mr. Stapleton, who runs the Tootle & Leach furnace, ships every few weeks a cake of silver weighing 125 to 150 pounds. His ores cost him \$70 per ton delivered, and he makes a profit of \$65 to \$80 per ton.

FROM CABLE.—New Northwest, March 10th: Mr. S. Cameron was in town on Monday, with 310 ounces of gold retort, the result of the last run on Cable ore.

The Independent of 4th, says the Cameron Co. have suspended operations on account of too much water in the mine.

PHILLIPSBURG.—Mr. Ritchie returned from Phillipsburg Tuesday, and from him we learn that the Stuart mill has suspended operations. Work has also been stopped in the mines and everything looks blue. Capt. Plaisted appears to be convinced that the Phillipsburg mines will not pay. The bodies of rich ore being small renders the cost of extraction and reduction too great.

UNIONVILLE.—Gazette, 13th: The National has struck rich rock, and will start its other ten stamps. The IXL hoisting works will be in operation on Monday. Whitlatch Co. has suspended work since the return of Mr. W., though they have plenty of good ore in sight. Harvey & Co., of the Evelyn, have again struck at 3-foot lode of good rock. The mill (the Addis) has 15 stamps going.

New Mexico.

SILVER CITY.—Cor. Denver News: "I have seen a statement of about 100 assays, not one below \$90 per ton, and most of them between \$800 and 3,200 per ton. The facts seem almost incredible, still they are facts, and I firmly believe that Silver City will, this summer, be the center of the richest mining business known."

Lower California.

The Bulletin has been shown rich specimens of gold quartz from the Angel Cana mine, San Rafael, 80 miles below San Diego. The party showing stated that there were six mines running when he left, all working with arrastras. Three men took out \$10,000 in three months. There are no mills in the Camp.

Utah.

The Colorado Miner of March 16th says: "We have been permitted to read a letter from an experienced metallurgist, now in Utah. The gentleman knows whereof he speaks. * * In East cañon, Ophir City, is the new camp. Country rock limestone. The chloride veins are very irregular and "pockety." Some of them a month or so ago paying immensely, but now with little or no ore in sight. The ore averages \$225 to the ton, and, as it is nearly as soft as earth, when they do strike a pocket the daily product is often very large—10, 15, 20 and 25 tons. The Mountain Lion looked the best of any and has an open drift, 40 feet long, on one side of which is a wall of chloride 2 1/2 feet thick, which runs from \$200 to \$400 a ton. The big stories about the Emma are all true, or seem to be, it often turns out 100 tons of good ore a day."

Following is a telegram dated Stockton, (Utah), March 19th.—Rich chlorides have been discovered in Soldier Cañon, about six miles east of here, and the town is almost deserted. It is mostly float that has been found.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., March 23.

The excitement in the mining stock market has been kept up during the week, and Crown Point has kept rising and topping over unfortunates in a way to remind one of the happy old times. On Monday this stock, which went as low as \$2 last November, reached \$160, the highest yet. Several other stocks have sympathized more or less in this movement. Today the excitement was, if anything, greater than ever.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

	Price, Mar. 16.	Highest.	Lowest.	Mar. 23.	Adv.	Doc.
Alpha Cons.	58	15	8	17	9	—
Belcher	23	61	33	50	17	—
Chollar-Potosi	69	11	81	12	2	—
Crown Point	100	160	100	145	45	—
Eureka Cons.	11	11	11	10	—	—
Golden Chariot	61	62	60	49	—	12
Gould and Curry	8	10	8	18	—	—
Hale and Norcross	81	90	80	86	5	—
Ida Elmore	12	12	11	12	—	—
Imperial	22	50	22	45	23	—
Kentuck	67	100	67	120	53	—
Meadow Valley	14	19	14	20	6	—
Ophir	9	12	9	13	9	—
Oro Hill Treat	6	7	6	7	1	—
Overman	5	5	5	5	—	—
Savago	46	53	46	80	34	—
Sierra Nevada	10	15	10	15	5	—
Yellow Jacket	50	67	50	78	28	—

Latest Prices.

[S. F. Stock and Exchange Board.]	
BID.	ASKED.
Alpha Cons.	16 1/2
Belcher	50
Chollar-Potosi	71
Crown Point	145
Duney	8
Eureka	80
Golden Chariot	49
Gould & Curry	67
Hale & Norcross	87
Ida Elmore	11 1/2
Imperial	44
Kentuck	115
Meadow Valley	20
Ophir	17 1/2
Oro Hill Treat	6 1/2
Overman	5
Savago	75
Sierra Nevada	15 1/2
Yellow Jacket	77

San Francisco Metal Market.

PRICES FOR INVOICES

Shipping prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, March 24, 1871.	
IRON.—Duty, Pig, \$7 per ton; Railroad, 50c per 100 lbs; Bar, 1 1/2c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb; Scotch and English Pig Iron, per ton, \$34.00; \$45.00; White Pig, per ton, \$30.00; \$33.00; Refined Bar, good assortment, per lb, .03; .04; .05; Refined Bar, good assortment, per lb, .04; .05; Boiler, No. 1 to 4, .04; .05; Sheet, No. 5 to 10, .04; .05; Sheet, No. 10 to 13, .04; .05; Sheet, No. 14 to 20, .05; .05 1/2; Sheet, No. 21 to 27, .05; .05 1/2; COPPER.—Duty, Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb. Sheathing, per lb, .26; Sheathing, Yellow, per lb, .21; Sheathing, Old Yellow, per lb, .21; Composition Nails, .21; .22; Composition Bolts, .21; .22; TIN PLATES.—Duty, 12c per box. Plates, 1 C Charcoal, per box, 10.00; 10.50; Roofing Plates, per box, 10.00; 10.50; Bait tin, 8c per lb; 25c per lb; STEEL.—English Cast Steel, per lb, .15; QUICKSILVER.—per lb, .—; LEAD.—Pig, per lb, .06; .07; Sheet, per lb, .10; .11; Pipe, per lb, .10; .11; Bar, per lb, .08; .09; ZINC.—Sheets, per lb, .10; .11; BARS.—per lb, .25; .35;	

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

[NEW YORK CRY, Saturday, March 11, 1871.]

IRON.	
Pig, Scotch, No 1 (cash), per ton.	\$31.00 @ \$33.00
Pig, American, No 1 (cash)	32.00 @ 35.00
Pig, American, No 2	30.00 @ 33.00
Special, ordinary sizes	110.00 @ 120.00
Common	75.00 @ 80.00
Refined	75.00 @ 80.00
Rods	80.00 @ 110.00
Horse-shoe	95.00 @ —
Hoop	100.00 @ 140.00
Scroll	97.50 @ 130.00
Nail-rod, per lb.	— @ 6 1/2
Spring	— @ 7 1/2
Tire	— @ 7 1/2

STEEL.	
Bar, best cast, warranted, per lb.	— @ 18 @ 19 1/2
Sheet, best cast	— @ 18 @
Sheet, second quality	— @ 15 1/2 @
Sheet, third quality	— @ 13 1/2 @
Saw-plates, circular	— @ 23 @
Double-shear, warranted	— @ 18 @
Single-shear	— @ 15 1/2 @
Montague & Co. (cast bars)	— @ 12 @
Machinery, round	— @ 12 @
German, best	— @ 11 @
German, goat	— @ 10 @
German, eagle	— @ 9 @
Blister, warranted	— @ 14 @
Blister, common	— @ 10 @
Jessop & Sons', common	— @ 17 @
Double-refined	— @ 26 1/2 @
Stone-ax shapes	— @ 26 1/2 @

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, March 23.

SOLE LEATHER.—The demand is still equal to the supply, and prices firm.

City Tanned	26	@ 30
San Cruz	26	@ 30
Country	25	@ 28
CALF AND KIP SKINS.—The close of the war has made no difference in the price of French stocks yet, and probably will not. Domestic skins rule the same as heretofore.		
Best French Calf Skins, per doz.	75	00 @ 100 57
Common French Calf Skins, per doz.	35	00 @ 75 00
French Kips, per lb.	1	00 @ 1 00
California Kip, per doz.	1	00 @ 75 80
California Calf, per lb.	1	00 @ 1 00
Eastern Wheel Stuffed Cal, per lb.	80	@ 1 25
Eastern Bench Stuffed Cal, per lb.	1	10 @ 1 50
Eastern Calf for Backs, per lb.	1	15 @ 1 25
Sheep Hides for Topping, all colors, per doz	8	50 @ 13 00
Sheep Hides for Linings, per doz.	5	50 @ 10 07
California Russet Sheep Linings	1	75 @ 5 35
HARNESSE LEATHER, per lb.	30	@ 62
Fair Bridle, per lb.	33	@ 00
Skirting, per side	4	60 @ 4 50
Wet Leather, per doz.	30	00 @ 50 40
Buff Leather, per foot	22	@ 60

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.	DAY
Alpha Cons., G. H. Mar. 1, \$1.....	April 5—April 24		
Belcher, G. H., Feb. 16, \$1.....	Mar. 22—April 10		
Chester Flat Black Gravel, Feb. 4, \$5.....	Mar. 10—Mar. 28		
Confidence, G. H. Feb. 6, \$3.....	Mar. 13—Mar. 31		
Cons. Virginia, Feb. 27, \$1.....	Mar. 13—May 1—June 5		
Eagle Quicksilver, S. Bar. Co., Feb. 8, \$20, Apr. 4—Apr. 10			
Gould & Curry, Va City, Feb. 23, \$12.50, Mar. 30—Apr. 20			
Imperial, G. H., Feb. 1 \$10.....	Mar. 7—Mar. 24		
Manmoth, W. P., Jan. 31, 10c.....	Mar. 10—Mar. 31		
Marble Falls, Nye Co., Nev., Feb. 6, 2c, Mar. 9—Mar. 27			
Mountain City, Nev., Feb. 18, 2c.....	Mar. 27—Apr. 17		
Neveada Butte, H. H. Co., Nev., Mar. 8, \$1, Apr. 8—Apr. 24			
Neveada, Nevada, Jan. 12, 2c.....	Feb. 23—Mar. 17		
North American Con. M. Co., Feb. 15, 5c, Mar. 29—Apr. 27			
Oriz H. Treas., W. P., Jan. 31, \$1.....	Mar. 6—Mar. 31		
Oriental, Sierra Co., Mar. 21, \$1.....	Apr. 24—May 14		
Overman, G. H., Feb. 28, \$2.50.....	April 8—April 28		
Placer, Placer Co., Jan. 4, \$6.50.....	Feb. 15—Mar. 11		
Rogers, Stony Co., Nev., Feb. 13, \$1.25, Mar. 20—April 17			
Silver Spring, Inyo Co., Mar. 15, \$5, \$6.25, May 1—June 5			
Seg. Belcher, G. H., Mar. 21, \$3.....	Apr. 23—Mar. 16		
Taylor, El Dorado Co., Jan. 31, 50c.....	Mar. 6—Mar. 27		
Tallulah, Nevada, Mar. 14, \$1.....	Apr. 25—May 13		
Union, Sierra Co., \$1.....	April 6—		

MEETINGS TO BE HELD.

Jackson.....Annual Meeting, March 27

Phenix.....Annual Meeting, April 3

LATEST DIVIDENDS—(Within Three Months).

Black Diamond, per cent.....	Payable Mar. 6
Chollar-Potosi, \$5.....	Payable March 9
Chollar-Potosi, \$5.....	Payable March 15
Eureka, div., \$2.....	Payable Feb. 7
Eureka Cons., \$1.....	Payable Feb. 20
Golden Chariot, div., \$7.....	Payable March 10
Hale & Norcross, div., \$5.....	Payable March 10
Meadow Valley, per cent.....	Payable Feb. 9
Neveada, div., 1 per cent.....	Payable March 6
North Star, \$1.....	Payable March 10
Sierra Nevada, div., \$1.....	Payable Jan. 16
Yellow Jacket, \$2.....	Payable March 01

*—Advertised in this journal

San Francisco Retail Market Rates.

FRIDAY, March 24, 1871.

MISCELLANEOUS.	
Butter, Cal. fr. do	30 @ 40
Pickled Cal. do	— @ —
do Oregon, do	— @ —
Honey, per lb.	25 @ 30
Cheese, per lb.	20 @ 25
Eggs, per doz.	40 @ 45
Lard, per lb.	15 @ 20
Sugar, cor. 7 lb. do	10 @ 13
Brown, do	10 @ 13
Beet, do	11 @ 10
Sugar, Map. do	37 1/2 @ —
Wool Sacks, new	— @ —
Second-hand do	— @ —
Wheat—cks, 22 1/2c	13 1/2 @ 14
Potato to G's Bags	— @ —
Beef Skins, each	15 @ 25
Sheep skins, w/ on	50 @ 60
Sheep skins, plain	12 1/2 @ 25
Goat skins, each	25 @ 35
Stains, dried, lb.	15 @ 20
Peaches, dried, 1/2	15 @ 20

PRODUCE, ETC.

Codfish, dry, lb.	10 @ 15
Barley, cwt.....	1 30 @ 1 35
Flour, ex. do bbl. 5.50	67 @ 25
Beans, cwt.....	87 1/2 @ 90
Potatoes, cwt.....	7 1/2 @ 8
Hay, 3rd cut, 100 lbs	60 @ 65
Live Oak Wood 100	62 @ 60
Oats, per 100 lbs.	1 60 @ 1 75

FRUITS, VEGETABLES, ETC.

Pine Apples, 1/2 doz	60 @ 80
Bananas, 1/2 doz	3 00 @ 3 50
Cal. Walnuts, do	— @ —
Crabapples, 1/2 doz	75 @ 100
Crabapples, 1/2 doz	75 @ 100
Apples, 1/2 doz	1 1/2 @ 2
Pears, table, per doz	12 1/2 @ 15
Oranges, per doz.	50 @ 75
Lemons, per doz.	15 @ 20
Pineapples, per doz	15 @ 20
Asparagus, wh. 1/2	12 @ 15
Green, do	20 @ 25
Artichokes, doz.	75 @ 100
Pickled, doz.	12 @ 15
Beets, per doz.	20 @ 25
Potatoes, per lb.	2 @ 3
Potatoes, sweet, 1/2	5 @ 6
Potatoes, new.	— @ —
Summer Squash	— @ —
Marrowfat, do.	4 @ 6
Cauliflower, 1/2 doz	60 @ 80
Cabbage, 1/2 doz	60 @ 80
Carrots, per doz.	10 @ 25
Celery, per doz.	75 @ 100
Salads, per doz	20 @ 25
Dried Herbs, 5 lb	25 @ 50

POULTRY, GAME, MEATS, ETC.

Chickens, apiece	75 @ 101	Lamb, per doz.	20 @ 25
Turkeys, per lb.	20 @ 25	Tongues, beef, ea	75 @ 75
Ducks, wild, per	37 1/2 @ 60	Tongues, pig, ea	15 @ 15
Tame, do	50 @ 200	Chops, beef, ea	18 @ 20
Teal, per doz.	— @ —	Oregon, do	18 @ 20
Geese, wild, each	37 1/2 @ 60	Hams, Cal, per lb.	18 @ 20
Tame, per pair	35 @ 40	Choice field	20 @ 25
From Chicago	— @ —	Whittakers' s	25 @ 25
Hens, each	75 @ 100	Salmon, Or.	10 @ 15
Snipe, per doz.	25 @ 50	Rock, per lb.	12 1/2 @ 15
English, do	25 @ 50	Perch, a water, lb	10 @ 12 1/2
Venison, per lb.	— @ —	Large Big Trout	6 @ 8
Quails, per doz.	60 @ 50	Herring, fresh	— @ —
Pigeons, dom. doz	50 @ 60	Sm kid, 100 lbs.	75 @ 75
Wild, do	50 @ 200	Terrapin, doz	50 @ 60
Hares, each	40 @ 50	Blackcher, p, k, ea	20 @ 20
Rabbits, tame, 50	50 @ 60	Sea Bass, per lb.	— @ —
Wild, do	60 @ 70	Hulbut, per lb.	62 @ 75
Squirrel, per pair	25 @ 38	Oysters, 100-1	25 @ 25
Beef, tend, per lb.	20 @ 25	Chesp, per doz.	61 @ 60
Sirloin and rib	18 @ 20		
Cornd, do	10 @ 12		
Smoked, per lb.	15 @ 18		
Pork, rib, etc., lb	12 1/2 @ 15		
Chops, do	12 @ 15		
Veal, per lb.	12 @ 15		
Cutlet, do	12 @ 15		
Mutton chops, 1/2	12 1/2 @ 15		

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MARCH 7TH.

- HOSE SPRINKLER.**—William Anderson, San Francisco, Cal.
TOOL FOR CARRIAGE-MAKERS' USE.—Geo. Atkinson, San Francisco, Cal.
MACHINE FOR MAKING HOOKS AND EYES.—Jeremy Taylor Ford, San Francisco, Cal.
SPRING FOR VEHICLES.—John R. Hiller, Woodland, Cal.
DOOR CLAMP.—Henry O. Hooper, Diamond Springs, Cal.
APPARATUS FOR BURNING HYDROCARBON OILS.—James R. Lee, Grass Valley, Cal.
BALE-TIE.—James E. Perkins, San Francisco, Cal.
WATER-CLOSET VALVE.—Alfred J. Smith, San Francisco, Cal.
GANG-PLOW.—James W. Sursa, San Leandro, Cal.
GRINDING PAN AND AMALGAMATOR.—Wm. H. Thoss, West Point, Cal.
SAFETY BRIDLE.—James Weatherhead, San Jose, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

HYDRAULIC TURNPIPE.—S. Adams, Michigan Bluff, Placer Co., Cal. This invention relates to an improved turnpipe or tube with nozzle attached, to be used for delivering a stream of water in hydraulic mining. The improvements consist in constructing the pipe near the nozzle in such shaped sections that, when put together, it will be convenient for handling, and well adapted for delivering the water. It consists also in a device for relieving the great strain exerted by the water on the moving joints, in order that the nozzle may be easily directed towards any desired point.

SULPHURET-SAVING MACHINE.—C. C. Coleman, S. F. This is an apparatus designed for saving sulphurets and separating them from the lighter matter which escapes from the mills or from sluices in ordinary placer or hydraulic mining. It consists of a large hollow revolving vessel, which may be cylindrical in shape, or may be slightly tapering, so as to be somewhat smaller at one end than at the other. This cylinder, or cone, revolves on a horizontal axis. On the inside is a spiral screw which causes the sand to move from one end to the other as the cylinder revolves, while the sides are cleared of adhering matter by a spray of water from a perforated pipe which extends through the cylinder from end to end. The inclination and arrangements are such that the sulphurets (which are introduced at the lower end), are discharged by the revolution at the upper end, while the lighter matter is washed out at the lower end.

CAM FOR QUARTZ MILLS.—O. P. Hart, Logtown, El Dorado Co., Cal. A very considerable saving in time, labor and expense can often be effected by having a cam cast in two sections, so as to be readily secured upon, or removed from, the cam-shaft without disturbing the shaft or other parts of the machinery. Mr. Hart has an improved construction and method of uniting these cam-sections, whereby the strength of the cam is not materially impaired, the cost of manufacture is slight, while the ease and convenience of replacing any injured cam or section is greatly increased.

EXPLOSIVE COMPOUND.—J. Hafennegger, S. F. Mr. Hafennegger is well known on this coast for his experiments with explosive compounds. His present invention relates to a mixture which shall possess in a high degree the strength and safety required in such an agent, and also to an improved cap, which shall be cheap, and at the same time sure and effective.

The Reinshagen and Buckman Pulley.

We illustrate below a device for securing pulleys, gear-wheels, etc., to shafting, which has been extensively used at the East, and which has given excellent satisfaction according to a number of testimonials which are given. The following is the description furnished.

This invention has for its object the production of a fastening device, applicable alike to both hollow and solid shafting, and one that shall secure the hub of the pulley or wheel to the shaft in such a manner that the pulley or wheel shall not, by the act of fastening, be forced out of its required concentric position on the shaft, and one that shall cause the hub to hug the shaft equally in all directions. In construction, the hub of the wheel or pulley is of a "crowning" or double cone shape, to which two rings are made to match, the hub on each side being slotted or severed at two or more points, in order that the rings, when driven on the cones, will serve to contract the bore of the hub and compel it to hug the shaft.

In the accompanying engravings, Fig. 1



Fig. III.

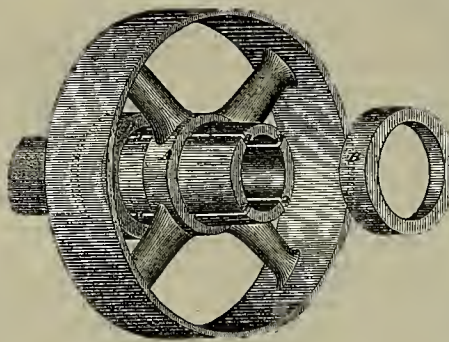


Fig. I.

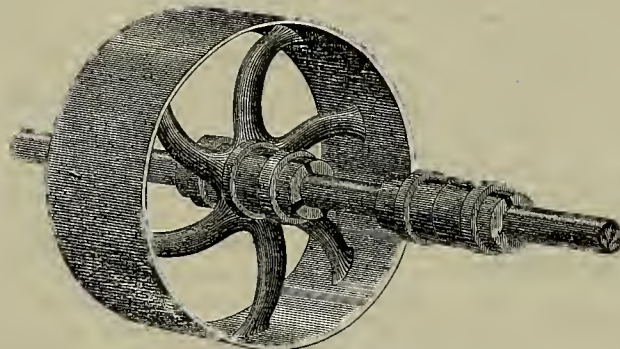


Fig. II.

REINSHAGEN & BUCKMAN'S PATENT PULLEYS.

is a perspective view of a pulley embodying this invention, one of the rings being detached. Fig. 2 is an axial section, with both rings in place. The hub, A, is tapering from both ends alike, in the manner shown, and is fitted with rings, B B, which are tapering to match the hub. At each end, from the extreme end to points near the arms, it is split, or slotted, entirely through at two or more points as shown, for the purpose of rendering the hub elastic, and enabling it to be closed or contracted in size, by the driving on of the rings, B B. It will be seen that the simple act of driving on the rings, B B, serves to force the hub tightly, in all directions alike, to the shaft, and preserves the concentricity of the pulley, or wheel.

Fig. 3 shows the pulley in position, also the pulley-coupling attached, being the same in construction as the pulley; its simplicity enabling one to disconnect the shaft, or remove the pulley with ease, in the shortest possible time.

It is well known, in the use of the common taper-key, or the set-screw for securing pulleys, etc., to shafts, that the inside of the hub, when fastened, has but two points of bearing on the shaft, and those mere line hearings, and that neither the key nor set-screw is admissible for hollow shafts in consequence of their liability to indent or collapse the shaft. The key, or set-screw, also forces the pulley or wheel "out of true," even when a good fit, so that when these fastenings are used, the inconvenient "driving fits" are essential.

With this device for attachment of the pulley to the shaft, the hubs may be bored a loose fit, convenient to adjust and re-

move, and yet, when fastened, be always concentric to the shaft.

The patent right for this device is owned by Messrs. Reinshagen & Buckman, of the Queen City Machine Works, 87 East 8th street, Cincinnati, who may be addressed for further particulars or for rights to manufacture.

Our Irrepressible Rodent.

The foresight and industry of the ant, the exactitude and care of the bee, and the faithfulness and docility of the dog, have long been proverbial. But who, hitherto, has been found to celebrate, in verse or prose, the sagacity and engineering skill of California's pioneer miner—the Gopher?

For how many ages prior to our gold-digging era has he tunneled and drifted, carried dirt, and "made his pile." How skillfully all his operations are performed; how regular and smooth the interior of his habitation; with what energy and diligence he applies himself to his daily labor. Surely we may dole out to him some measure of that respect which all men intuitively,

two short for a rat's, and his teeth much too long; his nose is much flatter and rounder; and although his hair and skin are soft like a rat's, the color is different.

By the way, do any of my lady readers know that the very finest Paris kid gloves are made of tanned ratskins? If not, tell them in a whisper, Mr. Editor, or they may faint.

The gopher is of a dull reddish brown on his back and side; his belly being of an ashy gray hue, and his paws white. His claws are strong and powerful, not retractile, and he has two long incisor teeth in either jaw, that protrude beyond his lips and lend a fierce expression to his face; he is also provided with two capacious pouches, lined with fur, that open externally just in front of the shoulder. Nature has thus provided him with mattock, spade, and wheelbarrow; and right diligently he plies his implements. The distance to which he will extend his burrow, in a single night, and the amount of earth that he brings to the surface, and makes into those well-known, neat little mounds, manifest his astonishing powers of endurance, and continuous hard work. My description may be thought incomplete should I omit to say that he belongs to the family of the mole-rats (*Aspalacidae*).

Unlike most rodents, such as the beaver, the common rat, etc., this curious little creature is most unsocial. An animal so singularly shy, solitary and savage, is rarely to be found. He is a thorough Ishmaelite; his hand against every man's, and every man's against him. In the whole animal kingdom he counts no friend. Hawks and cranes by day; badgers, 'coons, and all provlcers in the darkness by night; cats, wild and domestic, by day and night—all combine to compass his destruction. Not only are all creatures of other species inimical to him, but innate in his breast, he cherishes a deadly animosity to all rivals of his own kind. In his burrow he tolerates no intrusion. Should a neighbor break through into his premises he is immediately seized, and a war of outrage entered upon.

The Indians (who by the by, are good naturalists) were well acquainted with this trait in our friend's character, and laid their plans to trap him accordingly. One gopher having been captured and well secured to a long line, they placed him in the "run" of the gopher they wished to catch. Gopher No. 2 finding his territory invaded, rushes on the intruder; a fierce duel at once commences, tidings of which are communicated telegraphically to the Indian holding the free end of the line. He proceeds to haul in the cord, but so savagely is the combat still raging, and so tight is the grip each has of the other, that both gophers find themselves in the hands of the Indians before they are willing to cry, "Hold, enough!"

A CONVENIENT FIRE-KINDLER.—Mr. John W. Still, of this city, has just patented, through the SCIENTIFIC PRESS Patent Agency, an improved material for kindling fires. The trouble often experienced in getting a fire to burn is sometimes quite serious, especially for young housekeepers. But here is provided, in very compact form, a most irresistible fire persuader. It consists of cocoa-fibre or redwood bark thoroughly saturated with pitch, rosin or other highly combustible gum, and in some cases with other substances. It comes in small cakes, one of which is sufficient to kindle wood or coal. It is light, clean, cheap, and serviceable. It is denominated "Coco Pino," and can probably be found in any grocery store. The principal depot for the article is that of J. W. Still & Co., Washington street.

The first number of the *University Echo*, a monthly sheet published by the University of California, or, more strictly, by the Durant Rhetorical Society of the University, has been received. It is certainly remarkably good, both in substance and appearance. If it continues as it has begun, it will give the Eastern foreigners a better idea of the abilities of the Pacific student than we now believe them to have.

RAILROADS.—Since the war, Alabama has built 296 miles of railroad, Georgia 231, Tennessee 155, Texas 132, North Carolina 146, South Carolina 128, Virginia 104, Mississippi 128, Arkansas 90, and Florida 44.

though perhaps grudgingly, yield to real workers.

In many ways he is worthy of some slight notice, but it must be allowed that his chief claim to attention is the amount of mischief to which he must plead "guilty."

So great, in fact, is his ability to work wreck and ruin, that it might be instructive if one of my youthful readers, just beginning his troubles in algebra, would endeavor by the cabalistic mysteries of x and y , to solve the problem as to whether a "bull in a china shop" or a gopher in a garden, would work the greater mischief in a given period.

Probably most persons have seen some of the gopher's handiwork in their fields or gardens, but to many the animal personally is unknown. Let me try to introduce such to our little friend. Here is one just drawn from his burrow—in the trap. See how viciously he bites at the iron which grips him in a death clasp; he has already broken two of his long teeth in his vain efforts after freedom. Now he is dead, and as I hold him up for inspection the first sound that meets my ear is a small shriek from some fair reader, followed by the exclamation, "the horrid thing—it's a rat!"

I must admit that there is some excuse for the remark, as coming from one unacquainted with the vermin in general. But, if a rat, what has he done with his tail? where are the large ears? the long whiskers? the big lustrous eyes? His legs are

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARR before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Phosphorus—it Exists in Man.

LECT. V. Mar. 18.—Phosphorus, the name signifies bearer of light, was first discovered in 1672. It is a substance which is found quite largely in Nature under certain conditions. It exists in the bodies of animals, especially in the bones, about one-half of which is phosphate of lime and nearly one-half is what is called gelatine. I have here a bone out of which the phosphate has been taken, leaving the gelatine, and you see that I can twist and bend it and even tie it up in a knot.

The proportion of the phosphate and of gelatine is not the same, however, in all animals nor even in the same animal at all ages. When young, there is more gelatine and less phosphate of lime, and when old, less gelatine and more phosphate, relatively, in the bones of animals. This explains the reason why a child's bones will bend more easily but break with more difficulty than those of a grown person.

The bones of an adult weigh, we may say, about 10 pounds. About one-half is earthly matter, mostly phosphate of lime, say 5 pounds. About one-half of this, nearly 2½ pounds, is phosphoric acid, and again about one-half of this, 1 to 1½ pounds, is phosphorus.

There is also more or less phosphorus in the blood, the brain and the nervous system. It gets into the body from the food, for phosphorus exists in bread, in all kinds of grain, in leguminous and other plants, particularly in the seeds. The plants derive it from the soil, for it exists in minerals. This mineral, which I have here and which is called *Apatite*, consists of phosphate of lime, the same combination which exists in our bones.

The principal store-house from which we extract the phosphorus for use in the arts is the bones of animals. If we heat bones in a closed vessel they become blackened, charred, and we get *bone-black*. If we heat them in the air, we burn away the gelatine and get a white residue of phosphate of lime. The lime is then separated by sulphuric acid, leaving phosphoric acid, a compound of phosphorus and oxygen (P_2O_5). We can remove the oxygen by heating with charcoal powder, getting carbonic oxide, and leaving the phosphorus.

Experiments with Phosphorus.

Phosphorus has a strong affinity for certain other bodies, as chlorine or oxygen, and is never found uncombined in Nature. So strong is its affinity for chlorine that on putting a piece into a jar of chlorine gas, it burns, combining with the chlorine. It will also combine with oxygen, but must be previously heated to a certain temperature, about 150°. At 111° it melts.

Phosphorus enters into several different combinations with oxygen. If we burn it in a tube where only a certain amount of air can get at it, it forms a lower compound called phosphorous acid, P_2O_3 , which is this white smoke; and this red substance is a still lower compound, oxide of phosphorus, P_2O . If I ignite this piece of phosphorus and place it in a jar of oxygen gas, it gives an intense light, burns to phosphoric acid. This acid is readily absorbed by water, and colors blue litmus red.

Phosphorus is not soluble in water. If exposed to the air, it diffuses a white smoke and a light (it phosphoresces), which is very easily seen at night; it oxidizes, but the oxidation occurs at a low temperature, too low to occasion ignition, and is called *slow combustion*. In using phosphorus we must be careful to exclude it from the air (we usually keep it in water) as there is danger otherwise of its catching fire.

Phosphorus is dissolved to a certain extent in sulphuric ether, but more readily in sulphide of carbon. I have here a solution of sulphide of carbon holding phosphorus. I pour some on this paper. As the sulphide of carbon is very volatile, it rapidly passes off as vapor, leaving the phosphorus in a very fine powder on the paper, and this, as you see, inflames as soon as the sulphide of carbon is volatilized. Such a solution is therefore very dangerous, and, indeed, is sometimes used for setting buildings on fire.

Lights in Graveyards—Jack O'Lantern.

There is another compound—of phosphorus with hydrogen—the properties of which I can show you. I make it thus: I have here a glass retort. In this I put phosphorus and a solution of potash (soda or lime would do as well), also a few drops of sulphuric ether. I dip the end of the retort under water and heat the bulb. The only use of the ether is to drive out the air from the retort, which it does immediately, being very volatile. When the solution boils, bubbles rise, from the end of the retort, to the surface of the water, but as soon as they come into contact with the air they inflame spontaneously and beautiful rings of white smoke are thrown out. The bubbles are filled with phosphide of hydrogen (PH_3). The gas ignites on reaching the air, forming phosphoric acid—the white smoke—and water.

Now, you have all heard of, some of you may have seen, the luminous phenomena or "ghostly lights," of the cemeteries. Those are nothing but what I have just shown you. When the solids and the fluids of the body decay underground, where there is a deficiency of air, phosphide of hydrogen is formed. This, being diffused through the soil, comes to the surface in very small amounts, and, as in the case of phosphorus, gives a luminous appearance instead of a flame.

The phenomenon of the "jack o'lantern" is similar. The carcasses of animals decay in cold, wet places, and the phosphide of hydrogen is formed and inflates a light jelly-like substance, just as carbonic acid distends dough in bread-making. The inflated substance, having about the same density as air, is carried hither and thither by any currents of air, and the phosphide of hydrogen, slowly exuding, gives the luminous appearance as before.

Its Use—Matches.

Phosphorus is used principally for making matches. But it must, for use, have some other substance mixed with it. If I melt a piece of phosphorus in a tube, then insert a stick into the melted substance and withdraw it, the phosphorus inflames but doesn't make the wood burn. This is because phosphorus burns so quickly that the wood is not heated sufficiently. Phosphorus burns at 150° and sometimes at a lower temperature, but wood requires about 1,000°. But if I first tip the piece of wood with sulphur, and then add the hot phosphorus, the latter will, on igniting, inflame the slowly burning sulphur, and this in time will inflame the wood.

This illustrates the principle of the match. Matches are first tipped with sulphur and then a paste, of gum or glue or similar substance thoroughly incorporated with phosphorus, is added. In this paste there is also added some oxide, as oxide of lead or nitre, to provide the necessary oxygen. The glue glazes and protects the phosphorus from the air, that it may not inflame spontaneously. When we rub the match, we rub off the coating and, by friction, elevate the temperature sufficiently to ignite the phosphorus; the oxides furnish sufficient oxygen to support combustion, the sulphur is ignited and, in turn, ignites the wood.

Although phosphorus in its elementary state is a violent poison (it is frequently employed as a rat poison), yet when combined with other elements it forms an essential part of our bodies and a necessary constituent of our food.

We Impoverish the Soil, and waste Millions.

As I before said, phosphorus exists in grain. We can make an interesting and important calculation for our State. If we assume the production of wheat in California as 18,000,000 cents, this will contain about 7,000 tons of phosphoric acid, which is equal to about 15,000 tons of phosphate of lime. The value of this amount which is taken from the soil, estimating from the value of common bone flour or meal, may be put at \$1,600,000.

Now every person requires a definite amount of food. We may, in general terms, say this is equal to about 30 bushels of wheat yearly. Hence the 500,000 inhabitants of California will consume each year the phosphate of 9,000,000 cents, or about 3,500 tons of phosphoric acid, worth about \$800,000. The 40,000,000 people of the United States would thus consume the phosphates of 720,000,000 cents of wheat, or 280,000 tons of phosphoric acid, worth about \$67,000,000.

We see then how much valuable substance is removed from the soil of California yearly. Do the farmers seek to replace it? No. They even try to waste the valuable substance of the straw by burning it. We take pains that the phosphorus consumed by our bodies shall be carried away out of the State, washed into the

ocean to be transported long distances and consumed by animals elsewhere. We are throwing away the matter which, deposited in part as guano, we shall be importing from distant places forty, fifty, a hundred years hereafter. The grain which we export may be considered a permanent loss, but the phosphates which we eat might be saved. Of course our soil does not yield such crops as it did.

No one will calculate the value of the amount wasted by each individual as less than \$5 per year. Probably it is nearer \$10, but we will say \$5. The waste then of the 500,000 inhabitants of California amounts at least to the sum of \$2,500,000 every year.

You may ask: Is this practical? Yes. We are impoverishing our soil, wasting material of great value, every pound of which might be saved.

Artificial Stone Making in San Francisco.

We visited the Pacific Stone Company's works, on Turk and Larkin streets, last week, and found that they had twenty men busily employed and were turning out daily two tons of stone, chiefly for ornamental work. This shows that the merits of their manufactured article is being appreciated here.

We have previously described fully the method of manufacturing the Ransome stone, and have spoken of its excellent qualities, qualities which have been proved by the severest tests and are attested by the highest authorities. The stone withstands the effects of heat and cold, moisture and dryness, and other climatic influences. It is a perfect imitation of natural sandstone, and is, in fact, a stone, not plaster, nor concrete. It can be shaped after any design, however intricate, at a comparatively low cost, and the more complicated the design, the less the expense compared with that of natural rock.

We see that the company are making colored stones, the color penetrating the whole piece and being indestructible, we are told. We were assured that they were prepared to reproduce in the stone any color or shade of color which might be desired.

Every stone in the very handsome church which Dr. Stone's congregation are building, is furnished by this company. Ornamental work is being done for the grounds of Mr. Ralston, at Belmont. There are some very fine specimens of work for the lot of Mr. Thomas Anderson, at the Masonic Cemetery. The vases which are to be placed on each side of the steps, and which are fashioned after designs by Messrs. Wright & Saunders, are as fine as anything in stone in this city. For lots in Lone Mountain cemetery some very nice decorations are being manufactured. A font is being made for St. Paul's church at Benicia, etc., etc.

Grindstones are quite a speciality. One was shown us of 70-inch diameter, weighing 1½ tons, made for the California File works. Indeed, we saw stones varying from 70 inches to 3 inches in diameter, and from 12 inches to ¼-inch in thickness, which are made here.

This company have made a contract with Mr. Ransome, in virtue of which he will remain here several years. This fact will give additional guarantee to the excellence of the articles which will be manufactured. Their business will undoubtedly increase to large dimensions, and is already almost too great for their present capacity. We understand that the company will enlarge their works this summer.

THE Sacramento Union completed twenty years of existence last week. Like wine the Union improves with age, and it has justly attained the foremost rank in our State.

ICE MANUFACTURE.—The Alta states that negotiations have been entered into for the manufacture of ice in this city with the Carré machine.

GOOD HEALTH.

AN ULCER CURED BY A DOG.

James M. Hole, M. D., writes as follows to editor of the *Herald of Health*:—Some time in the month of February, 1864, I was called to see an elderly man—say 60 to 65 years of age. On entering he said: "Doctor, here is a very sore arm for you; I have had many doctors to treat me, but here it is. By this time he had the bandage removed from it, and just at that moment a large dog got up and walked over to his master, as he held the arm exposed, filled with bloody, pus-looking stuff—a bad looking ulcer indeed. The dog offered to lick it, but he ordered him away. I said: "Let him lick it off, if he will; I can see it better." "Here, Watch!" The dog walked up, went to work and licked it clean and nice from the shoulder to the wrist. The man seemed to experience considerable pain, but I kept his attention by getting an explanation of how long the sore had been there, the cause, etc. When the dog had finished, he retired to his resting-place on the rug in the room perfectly contented.

In answer to an inquiry as to the cause of the ulcer, he said: "I was bitten by a garter snake in harvest. My arm did not pain me much, and I did not tie it up; but after a while it became very much swollen. I doctored myself for some time, and then went to Dr. A., who said he would cure it in six weeks, but got worse instead of better. Then for one month I was under the care of Dr. B., but experienced no change for the better. I then used three or four bottles of patent medicine, but it did not help me. I began to think it a very bad case. Finally, I tried a German doctor; have taken medicine, but it still remains uncured. I have sent for you to ask what you think of it."

The man presented a generally ulcerated surface. I indeed thought it, as the man himself remarked, "a bad case." I ordered him to let the dog lick it three times a day, and if necessary, apply a little lard to it to induce him to lick it faithfully, and after each operation to apply a cloth moistened with melted lard and salt. I told him to call at my office in ten days. I did not see him for about six weeks, when he came, saying: Good evening, Doctor. I am well! How much is your charge?" Said I "One hundred dollars—what you offered." He replied—"That is too much; I will give you twenty-five dollars." "All right." I took a good look at the arm—it was well and entirely healed. I have no doubt as to the dog being the instrument of cure. I mentioned the fact to some of my medical brethren, but it did not seem to impress them favorably, and so it has remained ever since, as above stated.

THE USE OF LEMONS.—When persons are feverish and thirsty beyond what is natural, as indicated by a metallic taste in the mouth, especially after drinking water, or by a whitish appearance of the greater part of the tongue, one of the best "coolers" internal or external, is to take a lemon, cut off the top, sprinkle over it some loaf sugar, working it down into the lemon with a spoon, and then suck it slowly, squeezing the lemon and more sugar as the acidity increases, from being brought up to the surface from a lower point. Invalids with feverishness may take two or three lemons a day in this manner, with the most marked benefit, manifested by a sense of coolest comfort, and invigoration. A lemon or two thus taken at tea-time, as an entire substitute for the ordinary tea of summer, would give many a one a comfortable night's sleep and an awakening of rest and invigoration, with an appetite for breakfast, to which they are strangers who will have their cup of tea and a hearty supper.

RIPE FRUIT AND COLD WATER.—"Can a nursing mother eat ripe fruit of all kinds, and drink cold water?"

She can and should. Ripe fruit is one of the best articles of food, and cold water the best and only drink needed. The fruit should not be eaten between meals, but as a part of the regular meal. It should always be thoroughly masticated. Cold water should not be drunk at meals, or soon after eating, as it retards digestion. The prevalent idea that nursing mothers must be fed upon warm slops is a fallacious one, and the practice is injurious to both mother and child, and should never be adopted.—*Good Health*.

As sore throats are very prevalent, it may be of service to the afflicted to know that a gargle of a little alum and honey, dissolved in sage tea, will relieve it.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. R. STRONG
W. B. EWER. JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4; six months, \$2.50; three months, \$1.25. Clubs of ten names or more \$3 each per annum.

San Francisco:

Saturday Morning, March 25, 1871

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 22, 1871. Legal Tenders buying @90%; selling @90%. Gold in New York to-day 111.

Table of Contents.

The Lane and Bodley Double Saw Mill, Ill.; University of California.....	177
MECHANICAL PROGRESS.—The Iron Problem; Elastic Wheel; New Signal Light; Tin Waste; Effect of Cold on Iron and Steel; Steam Plowing; American Locomotives; St. Louis Iron Manufacture.....	178
SCIENTIFIC PROGRESS.—Fauna Argentina; Insect Metamorphoses; Basalt; Violet; Reduction of Nitrate of Silver by Charcoal; Alkaloids.....	178
Notes on Stanislaus and Calaveras Counties; Utah Mines, Ill.; Better Communication with Arizona; Petroleum; Tule Land Reclamation.....	179
MINING SUMMARY; Mining Stock Market; Shareholders' Directory; Market Reports.....	180, 181
List of Patents; Notices of Recent Patents; The Reinshagen and Buckner Pulley, Ill; Our Irrepressible Rodent.....	182
Chemistry and Its Applications; Artificial Stone-Making in S. F.; Good Health.....	183
Notices to Correspondents; Bureau of Mines; Academy of Sciences; Mining Schools in the U. S.....	184
Ware's Traction Engine, Ill; Railroad Matters.....	185
DOMESTIC ECONOMY.—Fretting a Habit; Frogs for Food; Cold Meats; Forks and Saw-Mills; Domestic Receipts; Mechanical Hints; etc.....	186
Constitution of the Bureau of Mines and Mining Statistics of the Pacific Coast; The U. P. and the Interior Mines; The Gates of Puget Sound.....	188
List of Mines in Ophir District, Utah.....	189

Notices to Correspondents.

"TWO YOUTHFUL CHEMISTS."—None at all. The only danger would be of the lights being extinguished. The idea of explosion probably comes from a fancy that the water would be decomposed into its two elements. The heat, however, will not decompose water.

Can Any Good Come Out of Nazareth.

We illustrated and described, last October, the "Universal Wood Worker," manufactured by Messrs. McBeth, Shaffer & Co., of Hamilton, Ohio. These gentlemen now inform us that our description brought letters from people "way down in Maine," and that they were somewhat surprised to know that the letters from that direction were brought through the influence of a Pacific Coast paper. The Press circulates principally on this coast, but is taken also in all sections of our country, as well as in South America, Europe and Australia; and as its reliability is well known, its influence is correspondingly great. This fact it may be of advantage to many to "make a note of."

ORCHILLA PICKERS.—It appears that the 300 emigrants reported as having left New York recently for Magdalena Bay, were sent out by Eastern parties under special contract, to pick and plant orchilla.

EXPERIMENTS have been made in France to ascertain what element it is in gas which causes it to be so destructive to trees near which it passes. The hydrogen and the carburetted hydrogen do no harm, but the tar element, and especially the carbolic acid, does the mischief.

A PORK PACKING ESTABLISHMENT, on the Cincinnati plan is about to be started at Soquel, in Santa Cruz county.

THE fruit crop of Butte is very promising, and bids fair to greatly exceed that of any former year.

The Bureau of Mines.

We publish on another page the Constitution and Rules adopted by the Directors of the Bureau of Mines and Mining Statistics of the Pacific Coast. We recommend the subject to the careful consideration of our mining community.

There are many capitalists in Europe and elsewhere, who are ready and desirous of investing in good mining property on our coast, but who are deterred by the swindles which have been so often perpetrated. There are, on the other hand, very many mine holders here who desire to dispose of their property, but are unable to do so.

The Bureau proposes to stand between these two parties, giving the one better opportunities for selling and guaranteeing the other against hare-faced cheats, against all but the risks incident to all business enterprises. Persons holding mines for sale can register them here at a small expense, filing proofs as to actual existence, location, and clear title. These proofs are required. Such registrations are open to the public, a fact itself of importance, as swindles cannot stand publicity.

The Bureau, we are assured by a Director, does not propose as its main purpose, to directly effect the sale of all the mines registered. After the capitalist has investigated the lists, it will engage an expert to examine further any particular mine, if so desired; or the capitalist may engage an expert for himself if he prefer. This we consider wise. If the Bureau proposed to sell mines, it would, in our opinion, run the risk of speedy disaster.

The Bureau will, therefore, act more as a mercantile agency or "Lloyd's," for the diffusion of trust-worthy information, and as such, if properly managed, it can be of the greatest benefit to the coast. It will be supported principally by the registration fees. We are inclined to be more hopeful as to its success than we were at first. We have been assured that the main promoters of the enterprise have the confidence of much French and English capital, and the Board of Directors is one calculated to inspire confidence. They must conduct affairs with tact and business ability; and if they do this, they will undoubtedly meet with success.

One point in the Constitution we may comment on. The Directors should carefully prepare a rule for the method of electing delegates to the conventions, and should diffuse widely among our miners information as to the real objects of the Bureau. The character of the convention, and of the Directors, is a vital matter for the institution.

RAMIE—AN IMPORTANT MOVEMENT.—Some of our enterprising citizens have bought all the ramie roots in market; and they are now being planted for crops of fibre, near Hayward, Alameda county. Mr. Finch goes to New Orleans for one of Lefrauc's machines to work it here. Planters in Louisiana seem to be entirely satisfied with this fibre dresser. It costs \$500, and it prepares 500 pounds of fiber per day from the green stalks, at very small cost. This machine makes ramie the most profitable production for the farmer for several reasons, viz.: It needs but once being planted; and every year thereafter, it yields three crops, aggregating one and a quarter tons of fibre to the acre. The refuse, turned under, fully manures the ground. Interwoven with silk or wool, it makes what are called stuff goods, which are in great favor. We believe this company sets out 250,000 plants, which assures a firm footing for this new product in California. The plant, like others of the nettle tribe, has no parasites. It remains to be seen if gophers find it attractive.

MUSTARD.—A large quantity of mustard is to be sown in Monterey county, this season.

Academy of Sciences.

The S. F. Gold Diggings.

At the regular meeting on Monday, after several donations to the cabinet had been received, Mr. Brooks stated that he had procured some of the gold from the Black Point sand hill, and had it assayed by Mr. H. G. Hanks. The "gold" proved to be brass. Mr. Hanks had visited and examined the locality. On the top of the bluff, for the space of several hundred feet, the sand is of a dark color, and, on examination, proved to be black magnetic sand. By washing samples, which had been taken from a number of places, particles of the supposed gold were obtained. These, under the microscope, presented the appearance of turnings and filings, and, when examined chemically, proved to be brass, as did the sample furnished by Mr. Brooks. Mr. Hank's theory was that there had been a machine shop on the ground, or possibly the brass filings had been placed there to deceive people, although it was difficult to account for the black sand and the even distribution of the filings.

New Mineral Localities.

Mr. Durand presented the following list of localities (not yet mentioned in the published catalogues) of certain minerals:

CALIFORNIA.

Magnetic Pyrites.....Nevada Co.
Metacinnabarite.....Redington mine, Lake Co.
Natrolite.....Los Angeles.
Partzite.....Blind Spring District, Mono Co.
Pectolite.....Dry Dock, San Francisco.
Vivianite.....Copperopolis, Calaveras Co.

NEVADA.

Anglesite.....Meadow Valley.
Bohrerite.....Irving Ledge, Reese River, Lander Co.
Branite (impure).....Meadow Valley.
Calamine.....White Pine.
Cerrusite.....White Pine.
Fluorite.....White Pine.
Massicot.....Mountain Dist.
Turquoise.....White Mts., Columbus Dist.
Ulexite.....near Columbus.
Vanadate of Lead.....Mountain View, Virginia City.
Silicious Earth, Diatomae.....Washoe.

ARIZONA.

Brochantite.....Mineral Hill, William's Fork District, Yuma Co.
Cinnabar, with silver and gold...Eugenie mine, Weaver District.
Fluorite.....Gen. Lyon, Castle Dome.
Minium.....Castle Dome.

IDAHO.

Halloysite.....Poorman Mine.

MONTANA.

Sapphire.....

LOWER CALIFORNIA.

Bournonite.....Triumpho mine, La Paz.
Cuproscheelite.....La Paz.

MEXICO.

Stilbite.....Guaymas, Sonora.

Recording Sub-Surface Temperature of the Sea.

Professor Davidson reported that the apparatus he had devised for recording sub-surface temperature for great depths, by means of a thermo-electric pile, had made good progress, even against the previous opinions of the instrument maker himself. It is proposed to register the depth by the well-known means of breaking the circuit of an electrical current passing through two insulated wires in the sounding line—say every 100 fathoms—by means of the wheel-work of the Massey or similar apparatus. In the changes of temperature, an electro-thermal pile, eighteen inches long, insulated, surrounded by a non-conductor, except one end, is used in combination with a Thompson's Reflecting Galvanometer, not liable to derangement on shipboard. At every 100 fathoms, when the chronograph registers the depth, the observer notes the reading of the galvanometer, which readings are reduced to Fahrenheit degrees.

Dr. Blake suggested that the unexposed end of the thermal pile should be surrounded by ice, and that by a non-conductor. Prof. Davidson thought the suggestion worthy of consideration. All arrangements must, however, be such as are compatible with the size of the apparatus.

Plagiarism.

There was some discussion concerning the fact that some Eastern scientists had appropriated discoveries made on this coast by residents, and had claimed originality after descriptions had been published here. Dr. Gibbons remarked that no one could be blamed where the Academy had not given full publicity in scientific journals. A number of cases were instanced, however, where such publicity had been given. Some of the most bare-faced plagiarism have been committed by English pseudo-scientists.

Mining Schools in the United States.

We have received a pamphlet, with this title, which is reprinted from the *North American Review* for January. It is written by Mr. John A. Church, of New York, and is excellent in its matter and style.

The pamphlet gives an interesting account of the principal mining schools of Europe and dwells forcibly on the necessity of having such institutions in the United States. That we need them is certain. The writer considers finally the question as to the best location for the schools. He concludes that, for the present at least, two schools would probably be sufficient for our country, one for the East and one for the Pacific coast, and that the former should be situated in New York, and the latter in San Francisco.

We agree with the writer in the general conclusions given in the article, except as regards the location. We believe that the best location for a mining school is "at the mine's mouth," at least for a mining school endowed by the Government and not dependent on private bequests. The great argument for a city location, in our opinion, is that of the pecuniary assistance which is more readily obtained in a large commercial center than in a smaller mining town. This applies to those institutions which are supported by individual liberality, and it is mainly to such that the article in question is intended to apply. We believe, however, in the establishment of Government schools, and hence there is really no direct opposition between our remarks and those of Mr. Church.

The advantages, other than that just spoken of, for a mining locality seem to us most important. We believe that practical opportunities should be furnished to the student at the same time the theoretical instruction is given. Otherwise he will get only the most crude, often very erroneous, ideas, even under the best instruction. To take an extreme case, the best teacher might lecture and instruct concerning minerals for years, and yet the student would be utterly unable to determine even the commonest species, if he did not have the minerals to examine while being told their characteristics. So it is with very many things in mining and metallurgy. We remember meeting a party of students from the Berlin Mining Academy on their getting into a mine for the first time. They had studied the subject in Berlin under good teachers for at least a year, yet their ideas concerning a mine were in many instances comically absurd. A young man can no more be properly instructed in mining away from a mine, than can a farmer learn agriculture away from a farm, or a mechanic comprehend machinery away from a workshop.

The benefits of a city location are, we think, generally over-estimated. One great point advanced is in the outside educational advantages. Now before a person takes up the study of a specialty, he should have received as extensive a general education as can be given him. This will depend to a great measure on individual circumstances. But when a student has once entered upon his special mining course, he has all that he can do properly in studying mining. Take the courses of lectures at Freiberg, for instance. We use the list given in Mr. Church's article. They number thirty. Add to these the time required in the laboratory, the drawing room, the cabinet, the field, the mines, at the furnaces. How much spare time will a student get in the few years he can devote to prepare himself for practical life?

We believe that there is many a better place for a mining school at the East than New York. There are various objections to a large city which will occur to our readers. We may refer to one, not as the most important necessarily, but because people try to reason it away by unmeaning

figures. It is the expense of living. To live decently in New York costs money. The expense of living is fairly estimated not from the lowest possible sum, but from the average sum expended by one's associates. To expect a young man to live much more meanly than do his friends, is to be unreasonable. Although this particular objection has not so much force in this city, yet we believe that Grass Valley, for instance, would be a better location than San Francisco.

As to the point, advanced in the article, that to have the school at the mines is to defeat its very purpose by giving undue importance to one metal and ore and thus give an imperfect, one-sided education, we differ from the writer. Such a result may follow from improper instruction, it does not necessarily result from the location. Again, mining schools do not turn out finished mining engineers, but only young men who have been given advantages which, if availed of, will enable them to become mining engineers of high rank, and that in a much shorter time than is possible for those who have not had such advantages.

The foolishness of tacking on a course of metallurgy or mining to each and every college in the country is dwelt on with justice. A few well-supported schools are what we need. To divide our resources up into a thousand small sums, is almost as bad as to throw them entirely away.

The pamphlet in question has been reprinted at the request of the Trustees of Columbia College. It would be an excellent idea for the Trustees to circulate it in our Western States and Territories. We have, perhaps, hardly done it justice, and advise our readers to get it, if possible, and read it, thinking over the various points for themselves.

They will find much in it that is worthy of consideration, and cannot but be benefited by its thoughtful perusal.

Ware's Traction Engine.

The object of the builder of the engine, represented in our engraving, has been to produce a self-propelling steam carriage for running on common roads, or on ice, and an engine which can be adapted to the work of the farm, to driving thrashing or other machinery, pumping, watering gardens, and other purposes.

One form of the machine is shown in the accompanying engraving, and presents a very neat appearance. The boiler is held between two forks of a steel frame, which meet on the forward axle and diverge towards the rear. The engines work on an incline, and drive a shaft which actuates the rear wheels by means of a chain. The engine is intended to give three revolutions of the first shaft to one revolution of the driving wheels. The difference can be multiplied to nine times. A lever in front of the driver's seat serves to guide the machine when used as a carriage, and a rod with handle connected to the engine shaft readily reverses the motion of the engine.

The engine can be easily guided when traveling at the speed of a fast horse. The relative speed and power of the wagon can be readily changed without stopping the machine, which is of great advantage when ascending heavy grades and passing over rough and uneven roads with the steam wagon. A link motion is not thought sufficient, and it is certainly inconvenient to be obliged to stop now and then to change the gearing.

The engine has some peculiar features. The cylinders are set at right angles to

each other, both being bolted to one casting and working on one crank. One eccentric works both valves, in backing and in going ahead. Steel and gun metal are largely used in the construction to insure strength with the least possible weight. The boiler is made to stand a high pressure, as it should be in all such machines.

The cut represents a comparatively small steam wagon. A larger one would be no longer or wider, but the boiler and machinery would occupy more space inside the wheels. The inventor, who has been in this State for some time, thinks that rubber tires would be unnecessary here, but he uses a corrugated tire or some similar device to prevent slipping. In one case he tried successfully smooth tires with pieces which were readily adjusted in a few minutes, when the engine was used for drawing loads or plowing.

The machine is a complete engine of itself, capable of doing the work ordinarily performed by the portable or stationary engine, and also adapted for locomotion. The inventor is confident that his machine

intersection with the U. P. R. R., and that measures be taken to organize the Portland, Dalles and Salt Lake R. R. Co.

In January it was announced that the California and Oregon branch of the C. P. R. R. would be pushed through to the Oregon line this year. The *Shasta Courier*, of the 11th, states that Hood's party, having completed and corrected the preliminary survey from Tehama county, through Shasta and Siskiyou, to the boundary, have been discharged.

The San Francisco and Northern Pacific R. R. Co. are pushing the grading on the line from Santa Rosa to Healdsburg, and it is stated that the cars will be running as far as Healdsburg by next June. The California Pacific have also commenced work on a branch of their road to run through Sonoma county. They began at Santa Rosa, to run up north, and statements are made that the line will reach Cloverdale this season. From Santa Rosa it will run south to Sonoma and thence to Vallejo, possibly via Napa. This will give Sonoma two roads.

The Vaca Valley Road may be extended up north to Pleasant Valley and thence possibly to Putah creek and beyond. The

to Tehachepa Pass, Kern county, where it will join with the Southern Pacific of California. This last is running now from San Francisco to Gilroy, 80 miles, and large quantities of iron are reported on the way for its continuation. It is stated that 20 miles more will be complete by July.

It is proposed to build a narrow gauge road from San Francisco to Menlo Park, about 30 miles. The *S. F. News Letter* learns from reliable sources that E. N. Robinson is organizing an engineering party to locate a narrow gauge road from San Francisco down the coast to San Diego.

The survey of the proposed road from Nevada and Grass Valley to Marysville was commenced on Feb. 16th., under charge of Mr. R. L. Harvis, one of the best engineers on the coast. The grades, as far as the survey has gone, are reported to vary from 35 to 116 feet. On the 18th inst., the survey was carried from Grass Valley as far as the county line.

In Utah there are several railroad projects. It has been reported that the Central Pacific will build a line from a point three miles west of Ogden to Salt Lake City, a doubtful report. Congressional aid has been requested for a road from Salt Lake City south, via Utah Lake and the Sevier and Virgin rivers, to Callville, at

the head of navigation on the Columbia river; and for a road from Ogden north to the Columbia river.

The Montana Central R. R. Co. desire Congressional aid for their road from Corinne or Carter, by Henry Pass, to the head of the Madison, and down this river to the Gallatin Valley. Aid is also requested for the Cheyenne, Iron Mountain and Helena, from Cheyenne, Wyoming Territory, to the Iron Mountain, to Fort Fetterman, along the eastern or north-eastern base of the Big Horn Mountain, to the Yellowstone River valley, to Helena.

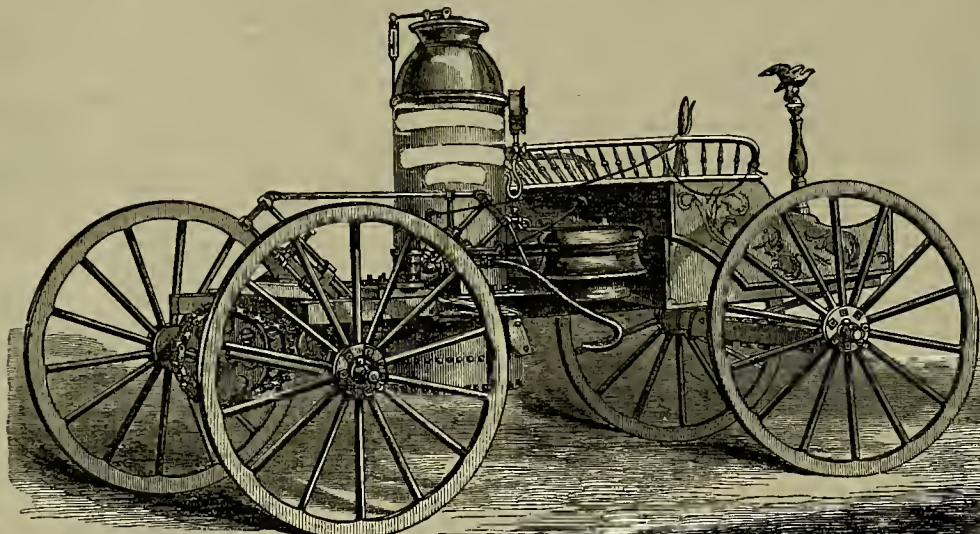
Nevada, having obtained legislative permission to construct narrow gauge roads, is determined apparently to have quite a number. The *White Pine News*, of the 8th, reported a surveying party already at work on the proposed road from Elko to Hamilton. The *Eureka Sentinel* thinks it very possible that the road from Palisade to Eureka will be finished by next September. The survey is to be commenced immediately.

A road from Mill City to Unionville, Humboldt County, 20 miles, will be built, we are told. The survey for the road between Reno and Virginia City was commenced February 24th. Special franchises have been granted to all these narrow gauge roads, and hereafter the gauge is not limited for other roads. The *Carson Register* says that steps are being taken to continue the Virginia and Truckee R. R. from Carson to Reno, via Washoe.

Colorado is getting impatient at the delay in building certain roads which are required to develop the resources of various rich sections. The Georgetown people have held a meeting and appointed committees to endeavor to secure a road as soon as may be possible. The Central City papers are working for a road to their place. The Boulder Valley road is complete from Hughes Station (on the Denver Pacific) to Erie, 15 miles, and the grading on the continuation to Boulder, 13 miles, is to be completed, according to the *Boulder News*, by July 1st. Work is being done on the Denver and Rio Grande. The Central City *Register* contains a letter from Mr. Luebbers (who has been reconnoitering a route for a road to connect Clear Creek and Gilpin counties with the plains), which favors a line up Ralston Creek. As to the question of broad or narrow gauge, Mr. L. states that the narrow gauge will cost less than one-fourth what the broad gauge would.

FIRST SHIPMENT OF COAL.—The first cargo of coal ever shipped from the Lake Washington Coal Company's wharf, says the *Alaska Times* of February 26th, is now being loaded into the bark Moneynick. She will take on two hundred tons. This has the appearance of business.

DEMAND FOR GUANO.—We are pleased to learn (through Geo. F. Silvester, 317 Washington street, who deals in the article) that the demand for guano is increasing in this State, and we hope it will be still more generally tested.



WARE'S COMBINED STEAM CARRIAGE AND ENGINE.

will give satisfaction, and all hitbert made are reported successes. Further particulars may be obtained by addressing Elijah Ware, San Francisco.

Railroad Matters.

Work is being pushed most rapidly on the Northern Pacific. On the eastern end three thousand men are said to be employed, and the first division, from Duluth, on Lake Superior, to the Red river, 223 miles, will soon be finished. On the western end, 700 men are employed and Kalama is exceedingly lively. We hear of shipments of materials for the road every now and then. Work at Puget Sound will be commenced soon. The Yellowstone route will be followed (*New Northwest*) but between the Yellowstone and the Columbia all is uncertain.

Concerning the Oregon roads, we have a number of reports and rumors. The Willamette Valley R. R. Co. has filed a map of their route from Portland to Forest Grove and thence south to McMinnville, with a branch northwest toward Astoria. The Oregon Branch Pacific Railroad contemplates a route from a point on the Central Pacific Railroad at or near Winnemucca, Nevada, by way of Goose Lake, Sprague's river and Klamath, across the Cascade range of mountains in the vicinity of Diamond Peak, to the navigable waters of the Columbia river, in the vicinity of Portland, Oregon.

At a recent meeting at Portland, it was resolved that a road ought to be built from that city through the Columbia gap of the Cascade range, by way of Eastern Oregon and Southwestern Idaho, to some point of

suggestion has been made, but no definite steps have yet been taken, as far as known.

The Central Pacific surveying party are still at work on the short route from Sacramento to San Francisco. The *Contra Costa Gazette*, of the 11th, reports them as being on the route from Bay Point to Moraga Valley.

The San Lorenzo Valley R. R. Co. was incorporated on the 11th. A road is to be built from Santa Cruz up the Lorenzo Valley and over to Santa Clara valley. The connection of San Jose with Alviso and deep water has long been talked of, and it is said that the California Pacific intend taking hold of the project.

The Stockton and Copperopolis road has been pushing forward. The first passenger train was run as far as Petersburg, 14 miles, on the 22d ult. Ten miles out of Stockton is Holden, from which place it is proposed to run a branch, 23 miles long, to Lone city, Amador county. The matter is being earnestly agitated.

The citizens of Antioch sent out, early in February, a party to survey a route from Antioch to Visalia, Tulare county. The party reached Visalia on the 10th inst. The route surveyed is stated as almost an air-line from Antioch to Watson's Ferry, on the San Joaquin Slough, and thence pretty direct to Visalia. The grade is given as very easy.

The Central Pacific company is reported as about to recommence work on the San Joaquin Valley road, which has stopped at Modesto. There are rumors that it will reach Bear Creek within three months.

After all the modifications and delays, the southern trans-continental railroad plan has assumed a definite shape in the Congressional bands. A bill has finally been passed providing for a main trunk (the Texas Pacific) from Marshall, Texas, along the line of the 32d parallel, to San Diego. The eastern end will have branch connections to New Orleans and other points. The western end will have a branch from Fort Yuma up through San Diego, San Bernardino and Los Angeles counties

DOMESTIC ECONOMY.

Fretting, a Habit.

"Fretting," says the *Herald of Health*, "is one of the silliest, most unnecessary, unchristian, unreasonable, unprofitable, undignified, unpleasant and useless things in the world. It never does any good; but always does harm to the one that frets, if no one else. Fretting is a habit, and may either be inherited or acquired."

The effects of fretting are quite as serious upon the individual who frets, as upon those with whom he comes in contact. It cramps and belittles the mind, and diseases the body of the unfortunate possessor of the habit; and however pleasant other surroundings may be, it brings disquiet and unhappiness into every household where it finds admittance. Although it often intrudes into the more public walks of life, its most sure and safe retreat is within the precincts of the household. There it works its direst effects, producing dyspepsia, nervousness and unnumbered forms of diseases upon the individual, and brings unhappiness, discomfort and numberless trains of evil to all who compose the household. And perhaps there is no other peculiarity so surely transmitted to posterity as this, especially when the habit is fixed upon the mother.

Fretting is too often regarded as the result, rather than the cause of disease. As already stated it is a habit, whether acquired or inherited; and like all other habits can be effectually broken up, if the sufferer can only apply his will firmly to the work. We know of no better rule for accomplishing this than the one assigned in the journal from which we have already quoted.

"The subject must do the greater part of the work. He or she must first be convinced of the folly, uselessness, and sin of the thing, and fully determine to conquer the detestable habit, and then whenever anything irritable occurs, KEEP THE MOUTH SHUT, and think of the folly and sin of giving way to the fretting proclivities until the irritated feeling has ceased.

The persons coming most nearly in contact with the victims of this habit can also do a great deal to aid them in overcoming it by kind and encouraging words, and by carefully refraining from saying or doing anything likely to induce the feeling of fretfulness."

SALT IN THE HUMAN SYSTEM.—Prof. E. Johnson, of Scotland, says: Upward of half of the saline matter of blood (58 per cent.) consists of common salt; this partly discharged every day through the skin and kidneys, the necessity of continued supplies of it to the healthy body becomes sufficiently obvious. The bile also contains soda (one of the ingredients of salt) as a special and indispensable constituent, and so do all the cartilages of the body. Stint the supply of salt, therefore, and neither will the bile be able properly to assist digestion nor the cartilage be built up again as fast as they naturally waste. It is better to place salt where stock can have free access to it, than to give occasionally in large quantities.

Dressing Frogs for Food.

A LETTER from Florence Italy, contains the following:—This morning I wandered through the market, and, turning a corner, came suddenly upon a frog merchant, who was busy preparing and selling the little jumpers. On a table was a large bag, into which a boy put his hand and took out a number of live frogs; with a pair of scissors he decapitated them in rapid succession, at the same time cutting the skin of the back open, and then threw them into a large earthen dish which contained, perhaps a hundred more in the same state. Although headless, they were all swimming about and jumping in the liveliest manner. After soaking for a short time, they are taken out and dexterously skinned and then thrown into a tub of clear water. Even after being beheaded and skinned, some of them managed to swim around in the tub, and always tried to climb up the sides. They are sold by weight, and are cleaned, the feet cut off, and are ready for the purchaser, who no doubt enjoys them more than I could after seeing the whole operation of killing.

Cold Meals.

The greatest desideratum of a second-hand dish, so to speak, is that it should not taste as such. Nothing is more abominable than the bad taste which is so prominent in the attempts at warming up cold meat, which your plain cook is pleased to call minced veal, hashed mutton, etc. The only means to avoid that taste is to remove carefully from the cold meat you are going to use, every part that has seen the fire as well as gristle and fat. Let every slice be carefully trimmed, and let them all be as near as possible similar in size and shape; then make your hash, and, even if you are not an expert at combining sauces and spices, at any rate it will not have a warmed up taste. The following are various formulas for warming up mutton and others meats:

Cut an onion in slices and fry it in butter till it assumes a deep brown color, then put in a table-spoonful of flour, and when it is well amalgamated with butter, add a little less than half a pint of stock broth, or even water previously warmed. Stir a few minutes on the fire, and then proceed to flavor your sauce with walnut or mushroom catsup, tomato sauce, spices, and pepper and salt, in such proportions as taste may suggest and practice will teach. A little burnt onion browning may be put in if the sauce is not of a sufficiently deep color.

When the flavoring is completed, strain the sauce through a fine colander into a sauce-pan, and place in it your slices of meat. Keep the saucepan at a moderate heat till it is time to serve, and send your hash with a garland of bread sippets fried in butter around it. The longer the meat lies in sauce the better will your dish be. Proceed as in the above recipe as far as the butter, flour, and onions are concerned; then add to your sauce a moderate allowance of mustard; then add the stock, with or without a little white or red wine. Season with catsup, spices, pepper, and salt. Strain and put in the meat, serving with pickles or not, according to taste. Beef and pork are best warmed up in this way.

A mode of warming cold meat is in this wise: Fry some slices of onion in butter, and when they begin to take color put in your slices of meat, pepper, salt, and a sprinkling of flour. Keep on frying till the onions are thoroughly done and the meat warmed, then add a small quantity of stock broth, or water, with a small quantity of vinegar and serve.

Forks and Sawmills.

A curious juxtaposition, the reader will say; but we have introduced them here as illustrative of the popular clamor which almost always attended the introduction of improvements and inventions, in the ordinary ways of labor and life, when inventions first began to find their way into the industries and amenities of society.

Forks were first known in Italy toward the end of the fifteenth century; but it was a hundred years before they came into use in France, and nearly a hundred more before they had traveled as far northward as Scotland. Their introduction into England was at first ridiculed as a piece of affectation and effeminacy. In one of Beaumont and Fletcher's plays, "your fork-carving traveler" is spoken of with great contempt, and Ben Johnson, also joined in the laugh against them.

The first man who appeared with an umbrella in the streets of London drew down upon himself a pelting shower of mud and stones, which was worse than the rain against which he had spread the new-fangled protection.

So with sawmills.—The old way of making boards was by splitting up the logs with wedges; and, clumsy as the method was, it was no easy matter to persuade the world there was a better. Sawmills were first used in Europe in the fifteenth century. In 1663 a Dutchman built one in England, but the public outcry against it was so vehement that he was obliged to decamp; and, for the next hundred years, no one ventured to repeat the experiment. In 1768 a rash adventurer began to erect another mill, but a conservative mob gathered at once, and tore it down.

AN INDUSTRIOUS WOMAN.—Mrs. Jane Ellis, of Searsport, Me., 74 years of age, has woven 340 yards of carpeting from March 10 to November 24, besides making 200 pounds of salmon nets and weaving 200 yards of cloth. All this in addition to doing her house work, and taking care of a sick husband.

Domestic Receipts.

CHEAP FRUIT CAKE.—Take three cups of dried apples, soak over night; in the morning chop fine, add two cups of molasses, and cook slowly one hour; when cooled a little, add one cup of sugar, one of raisins, one of thick sour cream, two eggs, one tea-spoonful of soda, flour enough to make a stiff batter, season with cinnamon, cloves, nutmeg, and lemon to taste; bake in a moderate oven.

MOCK MINCE-PIES.—Six crackers pounded fine, one cup of molasses, one of sugar, one-half of butter, one-half of vinegar, one-half pound of raisins chopped, two eggs, and spice to taste.

WINE JELLY.—One box of Cox's gelatine dissolved in a pint of cold water, then add a pound of loaf-sugar, the juice and grated rind of three lemons; pour on to this a pint of boiling water and a pint of wine, add cinnamon and cloves to taste. Bring all to a scald, strain, pour into molds, and set on ice till it is wanted. To be eaten with meats.

FAIRY BISCUITS.—Rub two ounces of butter with half a pound of flour and four ounces of sugar, and a few drops of almond flavoring; mix with the white of an egg, and a table-spoonful of milk; work well into paste two ounces of sweet almonds well pounded and through a wire sieve; take up pieces the size of a half dollar, bake a few minutes on buttered paper, taking care to keep them a pale color.

SNOW-FLAKE CAKE.—Half a cup of butter, two cups of sugar, four of flour, one of sweet milk, three eggs, well beaten, one table-spoonful cream of tartar, half a tea-spoonful of soda—or if you have prepared flour use no soda or cream tartar. Bake the cake in shallow jelly pans; while baking, grate two fresh cocoanuts carefully, and spread over each cake, as it comes from the oven, a thin frosting, and then sprinkle thickly with the grated nut. Three layers of cakes make one cake. This recipe will make two loaves.

MOLASSES CANDY.—One tea-cup molasses, half tea-cup any kind of sugar, tea-spoonful vinegar, a piece of butter half the size of a nutmeg. Put the whole in a skillet on a hot fire, and boil exactly ten minutes, stirring it all the time. Then set off to cool. Pull it as soon as it is hard enough. Boiling it twelve minutes will make it too hard. Eight minutes will not be enough. Ten minutes by the clock is the exact time.

Mechanical Hints.

WHITE SHELLAC, when new, will very readily dissolve in the usual solvents, but on exposure to the air it is gradually changed in its character, and it seems almost impossible to dissolve it; in such cases it should be put away in the hottle or jar in a warm place, and in time it will thoroughly dissolve.

TEMPERING OLD FILES FOR CHISELS.—Heat the chisel gradually to a cherry red heat, then dip in water about one inch of the chisel end till it comes to a black heat, then rub with a rubber till you see a blue color, then quench it directly. This is the way blacksmiths do them.

ANOTHER WAY.—Grind out the cuttings on one side, and you will have a bright surface, then damp the surface with a little oil; then lay the file on a piece of red-hot iron, bright side upwards. In about a minute you will see the bright surface turning yellow; and when the yellow has deepened to about the color of straw, plunge in cold water.

TOOLS IN THE WORKSHOP.—Of all tools in the workshop whether of the amateur or of the practical man, the absence of the grindstone would be most severely felt, without it the restoration of the edges of tools would be scarcely possible, and upon their perfection much of practical success of cutting processes depends. Sharp tools produce, with the least expenditure of time, surfaces so nearly finished as to require but very little polishing; whereas blunt tools leave lines and mouldings less accurately defined, and the additional friction or polishing employed to gloss over the defects makes a bad case worse, and obliterates all the keen edges that would impart to the work a defined or exact character.

SEASONING WOOD BY BOILING.—Small pieces of non-resinous wood may be perfectly seasoned by boiling four or five hours. Sash frames of Spanish chestnut which has been so boiled have been "wedged up" within six weeks after the tree was felled, and have stood to admiration. The boiling takes the sap out of the wood, and most hard wood so treated shrink one-tenth in the process.

Life Thoughts.

The crown of all real manliness, of all Christian manliness, is purity.

"GRANDEUR of character," says Channing, lies wholly in force of soul.

To be very attractive to all sorts of different people, one must have great readiness of sympathy.

HEAVEN-GATES are not so highly arched as Princess' palaces; they that enter there must go on their knees.

POSTERITY is able to be impartial, and restores the too great admiration of contemporaries to the proper degree.

NATURE has written a letter of credit upon some men's faces, which is honored wherever presented.—*Thackeray*.

In youth, women are our idols; at a ripe age, our companions; in old age, our nurses, and in all ages, our friends.—*Bacon*.

AN APT ANSWER.—Said one man to another: "If it wasn't Sunday, how much would you take for all that lumber?" If it wasn't Sunday I'd tell you.

It is not until the flower has fallen off that the fruit begins to ripen. So in life, it is when the romance has passed that the practical usefulness begins.

Most of the successful men are healthy men or were so at the time the foundation of their fortune was laid. To get rich requires health, and to keep and enjoy a fortune it is even more important.

HAVE the courage to show that you respect honesty, by whomsoever exhibited.

Have the courage to wear old clothes until you pay for your new ones.

Have the courage to obey your Maker, at the risk of being ridiculed by men.

Have the courage to prefer comfort and prosperity to fashion in all things.

Character is Power.

It is often said that knowledge is power, and this is true. Skill or faculty of any kind carries with it superiority. So, to a certain extent, wealth is power and genius has a transcendent gift of mastery over men. But higher, purer, better than all, and more constant in its influence, more lasting in its sway, is the power of character—that power which emanates from a pure and lofty mind.

In any community, who is the man of most influence? To whom do all look up with reverence? Not the smartest man, not the cleverest politician, nor the most brilliant talker; but he who in a long course of years of prosperity and adversity, has neighbors, who have seen his life, and all of whom pronounce him worthy to be called wise and good.

In any society when a difference of opinion arises on matters of little or no consequence, it is wise to give in, although you may have incontestable proofs to support the correctness of your opinion; this flatters the other's vanity, and cannot injure yourself.

"THIS little fellow," said Martin Luther of a bird going to roost, "has chosen his shelter, and is quietly rocking himself to sleep without a care for to-morrow's lodging; calmly holding by his little twig, and leaving God alone to think of him."

THE things that belong to man must be understood, in order that they may be loved; the things that belong to God, must be loved in order to be understood.—*Pascal*.

"FOR MYSELF" said the great Spinoza, "I am certain that the good of human life cannot lie in the possession of things which for one man to possess is for the rest to lose but rather in things which all can possess alike, and where one man's wealth promotes that of his neighbor."

NEVER be sorry for any generous thing that you ever did, even if it was betrayed. Never be sorry that you were magnanimous, if the man was mean afterward. Never be sorry that you gave. It was right for you to give, even if you were imposed upon. You cannot afford to keep on the safe side by heing mean.

THERE is no royal road to learning, the scholar must be content to tread upon each round of the ladder if he would reach the top, remembering "that which is easily gained is little valued."

For my part, says Hawthorne, if I had an insupportable burden; if, for any cause I were bent upon sacrificing every earthly hope as a peace offering toward Heaven, I would make the wide world my call, and good deeds to mankind my prayer. Many penitent men have done this and found peace in it.

Business Cards.

A NEW PATENT.

If you want a superior set of **TEETH** on Gold, Rose-leaf, or Pyroxaline, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN, NOTARY PUBLIC.

COMMISSENER FOR

Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
SAN FRANCISCO.
27v16

JOS. THORNHILL, BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Farmers and Mechanics
BANK OF SAVINGS,

No. 235 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO.
15v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
5v14U SAN FRANCISCO

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Another Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.
LEVI STEVENS.....President.
H. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

DR. F. HILLER,
Homoeopathic Physician and Surgeon.

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. ma4-6m

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MAHS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical CHEMIST,
No. 411 Commercial Street,
(Opposite the U. S. Branch Mint),
SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS,
4v16-3m

NEVADA METALLURGICAL WORKS,
19 and 21 First St., in Golden State Foundry.
RIOTTE & LUCKHARDT.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

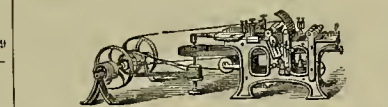
Richardson & Co., Copper Ore Wharves,
SWANSEA.

Richardson & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lys

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.
Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerscham Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Bolting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.MONITOR MOLDING MACHINE,
MADE BY

R. BALL & CO., Worcester, Mass.,
Manufacturers of the latest Improved WOOD-WORKING MACHINERY for Planing Mills, Car Shops, Agricultural Implements, Furniture, Sash, Blind, and Door Factories, etc., etc. Send for Illustrated Catalogue and Price List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly

R. H. McDONALD & CO.,
WHOLESALE
DRUGGISTS,

Have removed to the southwest corner of Market and First streets and now offer to the trade, and at low prices and on favorable terms the best selected stock of pure

Drugs, Chemicals and Medicinal Extracts,
Patent Medicines, Druggists Sundries and Toilet Articles.
etc., on the Pacific Coast. Buyers are
Particularly Requested
to give us a call and examine our stock and prices.
R. H. McDONALD & CO.,
1v22-3mins S. W. Cor. Market and First streets.

Substantial Success Based on Merit!

THE

IRON WORLD AND MANUFACTURER

IS PUBLISHED WEEKLY AT

Pittsburgh, Pa.

AND IS THE LEADING—IF NOT THE ONLY—REPRESENTATIVE JOURNAL OF THE METAL TRADES PUBLISHED IN THE UNITED STATES.

Located in the very centre of the metal interests of the United States, with offices and correspondents at the leading cities in the East, West and South, we do not err in claiming that it is the REPRESENTATIVE JOURNAL of the Metal Manufacturers, Workers and Dealers of this country.

THE IRON WORLD AND MANUFACTURER has a large and extended circulation throughout the United States, and is taken by Iron and Steel Manufacturers, Machinists, Founders, Hardware Dealers and Timbers, Gunsmiths, Plumbers, Cutlery Manufacturers, File Manufacturers, Saw Manufacturers, Boiler Manufacturers, and by

Leading Railway Officials.

It advocates protection to American Manufacturers. Its markets are full and reliable. If you are a manufacturer, take the journal that advocates your interests. Don't patronize Free Trade journals, but help those who help you.

With Free Trade the manufacturers of this country would be ruined. English gold is scattered with a liberal hand to further Free Trade. Expend some of yours to favor Protection.

If you advertise, which is the best medium? Circulation being equal, which would you patronize—a Free Trade journal or a Protection journal? Circulation is considered the value of an advertising medium. Much depends on the character of the circulation. The New York Weekly Tribune claims 200,000 circulation, and gets from two to five dollars per line for advertising. The Iron World reaches more people engaged in the metal business than the New York Tribune. Our rates are about ten cents per line. Which will pay the best? Sample copies mailed Free. Address

IRON WORLD PUBLISHING CO.,

No. 71 Grand street, Pittsburgh, Pa.

(TO BE PUBLISHED SHORTLY.)

A Synopsis of British Gas Lighting.

900 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of reference among

Companies,
Manufacturers,
Engineers.

Patentees, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be addressed to the Compiler,

JAMES R. SMEDBERG,

Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

AMERICAN JOURNAL

—OF—
Science and Arts.

(FOUNDED BY PROFESSOR SILLMAN IN 1815.)

And now numbering 100 volumes, in two Series of 50 volumes each.

Editors and Proprietors: Professors SILLMAN and DANA. Associate Editors: Professors GRAY and Gibbs of Cambridge and NEWTON, JOHNSON, BRUSH and VERRILL of Yale.

Devoted to Chemistry, Physics, Geology, Mineralogy, Natural History, Astronomy, Meteorology, etc.

A THREE SERIES IN MONTHLY numbers, making two volumes a year of about 450 pages each, from January 1871. Subscription price \$6.00 a year, or 50 cents a number.

A few complete sets on sale of the first and second series. Address

SILLMAN & DANA, New Haven, Ct.
mail-cow-2w

AGENTS WANTED.

A Magnificent Volume!

INTERESTING! NEW! RELIABLE!

incident and adventure. History, Fact and Humor.

CUBA WITH PEN AND PENCIL.

About 600 octavo pages, 20 beautiful Cuts! 313 Illustrations in all, engraved expressly for this work, in the best style, embracing every variety of subject and presenting

A Complete Panorama of the Island.

Many humorous illustrations are introduced to correspond with the many witty and laughable scenes, incidents, descriptions, &c., with which the volume abounds. New style elegant binding. Any one desiring to act as agent, will please apply at once for a circular containing table of contents, and sample of illustrations.

Address, F. DEWING & CO.,
mail-1m 542 California St., San Francisco.

THE NEW TYPE

ON WHICH

THE SCIENTIFIC PRESS

is printed, is from the

CALIFORNIA TYPE FOUNDRY,

405 and 407 Sansome St.

GEO. L. FAULKNER, Agent.

1v22-3mins

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Train	Express Train	Express Train	Express Train	Passenger Train
Sunday	Daily	Daily	Daily	Sunday
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:38 P.M.
7:38 P.M.	7:30 A.M.	San Jose	5:40 P.M.	
9:35 P.M.	12:10 P.M.	Stockton	11:46 P.M.	8:35 P.M.
	2:10 P.M.	Sacramento	11:15 A.M.	7:00 A.M.
	4:10 P.M.	Marquette	9:10 A.M.	
	8:00 P.M.	Seama	4:20 A.M.	
	2:30 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Calfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	9:10 A.M.	Winnemucca	4:05 A.M.	
	12:00 M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:10 P.M.	Ogden	5:15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6:50 8:10, 9:10, D 10:20 and D 11:10, a. m. 12:00, 1:30, D 3:00, 4:00, 5:15 6:45 and B 11:30 p. m.
LEAVE BROOKLYN, B 5:15, E 6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40 4:55 and 6:25 p. m.
LEAVE OAKLAND, B 5:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05 and 6:35 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:20, E 9:00, B 9:30 and E 11:30 a. m., 1:30, 4:00 and 5:30 p. m.
LEAVE HAYWARD, B 4:15, B 7:00, E 8:30, B 9:00 and E 11:00 a. m. and 3:25 p. m.
LEAVE ALAMEDA, B 5:15, B 7:35, E 9:05, B 9:35 and E 11:35 a. m., 1:35 and 4:05 p. m.

B Sundays excepted.
D To Oakland only.
T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt.
F Sundays only.
O To Fruit Vale only.
A. N. TOWNE, Gen'l Supt.

SHORT ROUTE.



The following time will take effect

Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Calistoga.	Sacramento.	Marquette.
8:30 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

S. Francisco.	Calistoga.	Sacramento.	Marquette.
8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leaves	Leave	Leave	Arrives at
Marquette.	Calistoga.	Sacramento.	S. Francisco.
6:30 A. M.	1:30 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:30 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 313 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent.

N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.

L. C. FOWLER, General Freight and Passenger Agent.
Vallejo October 1, 1870. 13v26-ly

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

81 Miles the shortest line

From Chicago to New York. Three daily lines of

Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh, Harrisburg, Philadelphia and New York,

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York without charge.

Through tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via

Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.

T. L. KIMBALL, Gen'l. West. Pass. Agt.
Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,
4v22-ly San Francisco, Cal.

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 317, 319 and 321

FINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

The U. P. R. R. and the Interior Mines.

We clip the following from the report of the President of the Union Pacific, presented at Boston on March 8th:

The increased facilities opened by the railroad for reaching the mining districts have greatly stimulated the development of the mines. Colorado and Utah are now opening some of the richest mines yet discovered in our country. The mines in the vicinity of Salt Lake are exciting great attention. It is estimated that from ten to fifteen thousand settlers and miners will be drawn there the ensuing season. The amount of ore to be sent over our road to smelting works East and to England, is estimated to be from five to ten thousand tons daily, while machinery and supplies necessary to develop successfully and profitably the mines, will give a very large westward business to our road. Our prospects of business from Salt Lake City and vicinity are very encouraging, and I shall be greatly disappointed if it shall not be more than double what it was last year. Our coal mines have proved fully equal to our most sanguine expectations, both in regard to the superior quality of coal as a steam generator and the extent of the deposit. It is believed that there is no better coal in this country for locomotive service, and nowhere can it be more cheaply mined. Iron ore of very superior quality and in vast quantities has been discovered in the vicinity of Cheyenne and Laramie. We have promise of an iron district here that will be able to compete successfully with the most favored localities of our country. Extensive iron works must spring up on the line of our road, and we shall be furnished with cheap iron for all its uses. Coal and iron, the most necessary and essential materials for the construction and operation of railroads, are found on the line of our road in unlimited quantities and of the finest quality.

PAPER CAR-WHEELS.—The Pullman Car Company is running a car, on the Chicago and North-Western road, with what are called "paper wheels." The wheels have steel tires and cast-iron hubs, and the paper is introduced in the way of filling under the tires, for the purpose of deadening sound and diminishing the force of concussion. According to the *National Car Builder* the wheels have been running since July last. The paper is said to be superior to wood for the purpose, being stronger and lighter, and free from knot-grain, or sap. It does not expand or contract, but remains in the condition in which it is put in. It is cheaper than wood, and can be molded into any form by pressure.

GRAY SQUIRRELS.—The Los Angeles *News* says that a couple of gray squirrels, with bushy tails, and apparently identical with those found in "the States," were killed a few days since, near that city. It is believed they are the first, of the kind observed on this coast. The *News* adds "There is a species, however, found among the pine trees on the mountains in California which, though almost identical in appearance with the squirrel of the Western and Southern States, yet differs from it in the possession of a well-formed clavicle or collar bone. Those recently killed by our friends may have been of this species, which is supposed to be the only one of the squirrel family possessing such an anatomical peculiarity."

COAL MINING at Golden, Colorado, says the *Transcript*, is progressing with more activity than usual. The Hazelton company, besides the regular work upon the mines near the pottery, have men at work in opening mines at two points north of the creek. In one shaft they have a fine body of coal of excellent quality. Here they are sinking for the purpose of working several levels at the same time. Some 300 yards south of this, alongside the railroad grade, they have sunk a shaft to the coal, and are drifting.

The great demand for our new paper has entirely exhausted our copies of the early numbers; we have constantly to inform new subscribers that we cannot furnish the full numbers now without breaking up our regular files, a limited number of which we have for bound volumes.

SAN FRANCISCO MILLIONAIRES—There are thirteen men in San Francisco worth over a million each. When dollars come to be counted Michael Reese can count sometime after the others have exhausted their resources.

Constitution and By-Laws of the Bureau of Mines and Mining Statistics of the Pacific Coast.

ARTICLE 1.—This association shall be known as the Bureau of Mines and Mining Statistics for the Pacific Coast. The Bureau shall be constituted by the election of one delegate from each county in the States of California, Nevada, Oregon, and such other States and Territories as may elect to send delegates to the annual convention. The affairs of the Bureau shall be conducted by a Board of seven Directors, three of whom may be the legal representatives of foreign nations, accredited to the United States, and residents on the Pacific coast.

ARTICLE 2.—The officers of the Bureau shall be a President, Vice-President, Secretary, and Treasurer, who shall be elected from the members of the Board of Directors. The Directors shall be elected at the annual meeting of the Bureau, which shall be held on the second Tuesday in September in each year; and they shall hold office until their successors are elected and qualified. The Directors, when elected, shall, within twenty days thereafter, meet and organize by the election of officers of the Bureau for the ensuing year.

ARTICLE 3.—The object of the Bureau shall be to establish a source of correct and reliable information to foreign and domestic capitalists, and other persons who may desire to obtain information respecting mines and mining property, and thereby furnish a channel for the investment of capital, and encourage the development and working of valuable mines on the Pacific coast.

ARTICLE 4.—The business of the Bureau shall be conducted by a Board of seven Directors, three of whom may be the legal representatives of foreign nations accredited to the United States and resident on the Pacific coast. And it shall be their duty, when requested so to do, to examine or cause to be examined, the title and character of all mining property that may be laid before them for that purpose, and report the same; which report shall be entered upon the books of the Bureau.

ARTICLE 5.—The Board of Directors shall cause hooks to be opened by the Secretary for the registration of mines, and parties desiring to register mines, shall, over their own signature, properly witnessed, furnish a statement of the locality of the mine or mines, the title to the same, the character of the ore, and the kind of mineral it contains, the number of shares or feet in the same, whether incorporated or not, and if so, where and in what State or Territory, the amount of and kind, if any, of the improvements thereon, the distance from transportation by water or railroad to San Francisco or New York, and such other information as the Board of Directors may require.

ARTICLE 6.—The Board of Directors may hold their meetings as often as the President may deem best for the interests of the Association. Notice thereof shall be given at least ten days previous to such meeting by depositing a written notice addressed to the Directors severally, in the postoffice or express office, provided that upon the written application or request of four members, the President shall call a special meeting, giving not less than five days notice of time and place.

At any meeting four members shall constitute a quorum for the transaction of business.

ARTICLE 7.—The President shall preside at all meetings of the Board of Directors and shall give the casting vote in case of a tie. He shall also approve and endorse all reports on titles, documents, and examinations of mines and papers relating to mines or mining property, which a majority of the Board of Directors shall have first approved.

He shall also, in conjunction with the Secretary, or other officer appointed by the Board, employ a mining expert, or mining engineer to examine the locality and mining property and report thereon, when requested to do so by any party who has caused to be registered in the book kept for that purpose, any mine or mines, provided the party requesting such examination shall deposit a sum of money sufficient to pay the necessary expenses for that purpose, with the Secretary. He shall also approve and countersign all bills, checks, or orders drawn on the Treasurer.

ARTICLE 8.—In the absence or inability to attend the meeting of the Board of Directors for any cause, by the President, the Vice President shall be charged with all the duties, and have the same power as the President.

ARTICLE 9.—The Secretary, shall attend all meetings of the Board of Directors, and keep a record of their proceedings, in a

book provided for that purpose, and also, receive, register, and carefully file and preserve, all copies of titles, records, documents, reports and papers deposited in the Bureau for examination and reference, and enter the name of the party who deposited the same, in a book provided for that purpose.

He shall also keep an accurate account of all moneys paid for registering and filing copies of titles, records, documents and papers in the Bureau, and receipt for the same to the party paying it. He shall also deposit all money with the Treasurer, taking his receipt for the same. He shall also draw all orders or checks on the Treasurer, entering the same in a book to be kept for that purpose, which with all other hooks, papers and documents, shall be carefully preserved, and open to the inspection of the Board of Directors at all times during the business hours of the bureau, and he shall perform such other duty as the Board of Directors may prescribe.

ARTICLE 10.—The Treasurer shall receive all money's belonging to the bureau, and pay them out upon warrants signed by the Secretary, and countersigned by the President of the Board of Directors.

The Directors may adopt such by-laws and rules for the government of the Bureau as they may deem necessary to the objects and interests of the association. The by-laws and rules adopted by the Bureau may be altered, repealed, amended or changed at any meeting, by a vote of six of the members of the Board of Directors.

Rules and Regulations.

RULE 1.—Parties registering mines or mining property, shall be required to furnish the Secretary with a true copy of the record of the mines or mining property, as recorded in the office of the Recorder in the district in which said mining property is located, or of the County Recorder, as the case may be, which shall be registered in a book kept for that purpose in the office of the Bureau.

RULE 2.—Parties desiring mining property examined under the direction of the Board of Directors and a report thereon, shall deposit such sum of money as the Board of Directors may determine to cover all actual expenses of such examination and report, a copy of which shall be furnished, properly certified to by the Secretary, to the party or parties making the application, and the original report shall be entered in a book kept for that purpose by the Secretary.

RULE 3.—The Board of Directors shall employ only such persons to examine any mining property as are known as mining experts, or mining engineers, and no report shall be received where it shall be made to appear that the parties making the examination have any interest directly or indirectly in the property examined by them.

RULE 4.—No Director of this Bureau shall take part in the examination or adoption of a report thereon upon any mining property in which he may be interested.

RULE 5.—The Board of Directors may fix such fee for registering mining property, as they may deem proper and just.

J. BERRON, President,

E. P. HUTCHINS, Secretary.

SILKWORM EGGS.—The stock on hand is greater than can be fed in this State; for our mulberry men have turned everything into eggs, neglecting the make of silk. The war in Europe has shut up our only market. This may be a benefit; for it will compel us, now, to turn our attention to making silk, which will be a permanent industry; while the sale of eggs would be, at best, of only limited duration.

In Japan there is also a surplus of eggs, for the same reason. A large consignment from that country is expected here, in a few days, and it is intended to induce all mulberry men to supply themselves, by low prices, and every manner of accommodation; including taking pay in the issuing product of cocoons. The eggs are consigned to James H. Van Read, and they are under government stamps, certifying the quality to be superior.

We may mention here that James Dale Johnston has ready for the press, a complete treatise on silk making; giving detailed instruction, which is very much wanted.

HEATING RAILROAD CARS.—A Berlin engineer has invented an apparatus for heating cars by means of chemical reagents. Experiments on the Berlin-Potsdam Magdeburg road, according to the *Arbeitsgeber*, showed the practicability of the plan, and the apparatus is to be introduced there.

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D.
Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N. Long. 121° 29' 44" W. Height above mean low tide, at San Francisco, 74 feet. Height of lower surface of mercury, 34 feet. The amount of cloudiness is designated by figures, 10 being entire cloudiness; 5, half cloudiness; 0, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from three daily readings at 7 A. M., 2 P. M., and 9 P. M., in conformity with the arrangements of the Smithsonian Institution.

1871.	DAILY MEANS OF		TEMPERATURE		WIND.		RAIN	
MONTH	Barometer	Corrected.	Temp. Air.	Temp. Surface of Water.	Direction	Force	Amount of Rain.	Direction
AND DAY.	Reduced to Sea Level.	Temp. of Vapor.	Rel. Humidity.	Force of Wind.	Direction	Force	Amount of Rain.	Direction
MARCH.	INCHES.	DEGREES.	DEGREES.	DEGREES.	INCHES.	DEGREES.	INCHES.	DEGREES.
Sunday...	30.061	55	83	354	10	90	0.020	S. E.
Monday...	30.130	55	83	354	10	90	0.040	S. E.
Tuesday...	30.157	54	83	263	1	63	0.000	N. W.
Wednesday...	30.292	54	76	315	5	64	0.000	S. E.
Thursday...	30.115	54	64	274	4	64	0.000	S. E.
Friday...	30.025	55	72	311	5	64	0.000	S. E.
Saturday...	30.068	59	75	389	7	74	0.000	S. E.
Sunday...	29.866	59	271	3	69	42	0.000	S. E. W.
Monday...	29.872	55	251	1	69	42	0.000	S. E. W.
Tuesday...	30.150	59	83	225	1	69	0.000	S. E.
Wednesday...	30.207	57	69	327	7	64	0.000	S. E.
Thursday...	30.105	55	68	294	7	64	0.000	S. E.
Friday...	30.025	59	225	1	62	40	0.000	S. E.
Saturday...	30.111	59	64	231	7	69	0.000	S. E.

*Thermometograph. *Rain.

REMARKS.—Saturday, Feb. 18, 1871.—The weather has been variable and more or less stormy or cloudy during the whole week—not one single entirely clear day presenting. Although the rain has not exceeded a sprinkle, still the tendency continues (at the present writing, March 19, 11 A. M.) and we see no reason for modifying the opinion expressed in our remarks last week. The same comical causes which have delayed the rains in the southern part of our continent, doubtless affect us also; and the result will be, here as well as there, late but sufficient rain.

PACIFIC COAST INCREASE.—The census reveals the fact that the population of the Pacific Coast has increased fifty-eight per cent, in ten years. That does not look very much like retrogression, especially as New England, in the same period, only increased eleven per cent. By our mode of reckoning, that section of the country ought to be "gone in" indefinitely, but it is not; on the contrary, we believe that it is very well satisfied with itself.

LITTLE RHODE ISLAND is the first, and so far the only State which has responded to the Act of Congress requesting the several States to send to Washington statues of their most distinguished citizens. Rhode Island has sent two statues,—of General Greene and of Roger Williams.

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the PRESS. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21870 shows that our patron has paid his subscription up to the 21st of September, 1870; 4372, that he has paid to the 4th of January, 1871; to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

FOUR MONTHS' SUBSCRIPTION for \$1.—Subscribers to the PRESS who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper, or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

SALT LAKE CITY.—Chan, Ricketts is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS.

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Muller's Brazilian spectacles are acknowledged to be the best in use.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14720

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

E. J. FRASER, M. D.,

No 108 Stockton Street, S. F., Cal.

1000 Farms

In Los Angeles County.

For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Abel Stearns Ranch," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the uncolored portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO. LYNCH, at Anaheim and Los Angeles. 1422-ams

LIST OF MINES IN OPHIR DISTRICT,
UTAH.

The following is a correct list of all locations made in this important district up to December, 1870:

NAME OF CO.	NO. FEET.	NAME OF CO.	NO. FEET.
Hidden Treasure, 1st	1000	Lowland Chief	1000
Old St. Louis	1000	Auburn	1000
California Lode	800	Spanish	1000
Sacramento	1000	Marble Co. & Ledge	600
Ward	1000	American Eagle	600
McCullen	800	Chloride Hill	1000
Silver Treasure	1000	Saint Patrick	800
Harrison's Progress	1000	Lena	1000
Grizzly	1200	Black Bird	1800
Burnet	1200	Stockton	1200
Cliff Mine & Co.	1000	Tamapo	1000
Lilly Rose	1000	Excavating Star No. 2	800
Bumuck	1200	Rolland	1000
Ophir	1000	Waggon	800
Hidden Treasure, 1st	1000	Monitor	1000
Ex. West (Old St. Louis)	1000	Wescott	1200
Severe	800	Columbia	1000
Musical King, (former)	800	Central Pacific	800
Cherry	800	Pennsylvania	1000
Champion	1000	Raymond Dickey	2200
J. W. Cooley	800	Bath	1000
Sovereign	1200	Colorado No. 2	1600
Balsom	3000	Tyler	1800
Swansea	1400	Nebraska Mining Co No	1400
Fair View	1000	Crown Point	1200
Mountain View	600	Putnam's Lode	1200
Chaparral West	800	Johns of Summer	1000
El Dorado West	600	Potomac	1000
Woolfaren	1200	Climax	800
Mountain View Easter-	1200	South Aurora No. 2	1200
ly (Empire)	600	Shogangy	1600
Eldorado, (Capitol)	600	S E Ewing	1200
Crypsolite Easterly	1000	Eastern Slope Tunnel	1000
Lucifer	1000	Horn Silver Hill	2000
Gray	1000	Gray	1200
Silver Gray	1000	Hindoo	1000
Mountain Lion, No. 1	1000	Engle Cliff	800
Lo Monitor	3000	Silver Cave	800
Yankee Blade	3000	Dream	600
Nancy	3000	Valley Tan	1200
Miner's Delight (Blue	1200	Commodore Nutt	800
Monster)	1200	Pikes Peak	1400
Dixie	1200	Marlin Lode	1200
Big Monster	1800	San Joaquin	1400
Prairie Ledge	1600	Empire	3000
Hunt Lode	1600	Decatur	400
Alexander	1600	Macbeth	1400
Pocahontas	2000	Decatur No. 2	400
Yellow Jacket	1000	Empire No. 2	3000
Baby	1200	McLeran	1200
Chloride Gem	1200	Velocipede	1200
Silver Queen	3000	Paul Pry	1200
Jefferson	2000	Ophir No. 2	1000
Brooklyn	2000	Eclipse	1200
Tunnel No. 1	1200	Red Warrior	1000
Tunnel No. 2	1200	La Plata No. 2	1200
Tunnel No. 3	1200	Wisconsin	1000
Tunnel No. 4	1200	San Francisco	1000
Chloride Tunnel	1200	Samuel Deposit	1000
El Paso	1800	Silver Horn	1000
Ranger	600	Mountain Tiger	1800
Westerly Extension of	600	Appleby	800
Legacy	600	Eureka	800
Ere	1600	Rocky Point	800
Eastern Extension of	400	Ranger Easterly Extension	1200
Legacy	400	Kingdon	3000
Kingdon	3000	Blue Monster	3000
Blue Monster	3000	Fou Du Lac	3000
Lola Montez	2000	Dailey	3000
Buckeye	3000	Dunderberg	3000
Decatur	3000	Decatur	3000
Angel	3000	Omaha	3000
Poor Man's Friend	1400	Hiawatha	1400
Long Island	3000	El Capitan	1200
Silver Glance	1400	Badger	1400
Mountain	1400	Sacramento (Old St. Louis)	1000
Mountain Lion (No. 2)	1000	Silveropolis	1200
Cofax	1000	Shakespeare	800
Blue Wing	1800	Blue Wing	1800
Utah Tunnel	3000	Nonpareil	3000
Star of the West	3000	Evening Star	3000
Cliff	3000	Tampanell	1000
North Light	3000	Onida	3000
Morning Star	3000	Relief	3000
Harriet	3000	Meander	1000
Diana	1000	Silver Brick	1200
Alabama	1000	Chloride Point	1000
Occidental	2000	Black Hawk	800
Old Sport	2200	Aunt Sally	800
La Plata	1200	White Spar	600
H. Ward Beecher	1000	Silver Chief	1200
Silver Brick	1200	Elk Horn	800
Blue	1000	Spirit Fire	800
Chloride Point	1000	Palmetto	1200
Tintie View	1600	Lone Star No. 2	200
Black Hawk	800	Rockwell	3000
Aunt Sally	800	Croesus	800
White Spar	600	Panther	2000
Silver Chief	1200	New York	2000
Elk Horn	800	Crooked Horn	2200
Spirit Fire	800	Puzzle	2200
Palmetto	1200	Parrish	600
Lone Star No. 2	200	A J Drake	1000
Rockwell	3000	Zenith	600
Croesus	800	Miner's Delight	2000
Panther	2000	Monroe Chief	1400
New York	2000	Whittington	1400
Crooked Horn	2200	Link	1000
Puzzle	2200	Union	2000
Parrish	600	Genuine	800
A J Drake	1000	Monarch	800
Zenith	600	Amelia	1200
Miner's Delight	2000	Extension on Moun-	1000
Monroe Chief	1400	Lake View	1000
Whittington	1400	Boston	1200
Link	1000	Mount Eagle	1200
Union	2000	Faxton	1400
Genuine	800	White Pine, 1st Ex-	1400
Monarch	800	Great Eastern	1400

NAME OF CO.	NO. FEET.	NAME OF CO.	NO. FEET.
William Tell	1000	Rising Sun	800
Wild Ranger	1000	Livonia	1000
Look Out	800	First Ex. N. E. of Ris-	1000
Chloride Star	1000	ing Sun	1000
Clara	1200	Elmina Ledge & Co.	1000
Silver Crown	1000	Grey Eagle	1400
Mount Stirling	1200	A. D. White	1000
Grey Jacket	1000	Silver Tide	1200
Black	1000	Gorham	1200
Mark	1000	Silver Arrow	1000
May Ann	600	M. C. Raymond	1000
Crown Point	1400	Deseret	800
Morning Moon	1000	Lowell	1000
Green Eyed Monster	1400	Saico	800
Mountain	1200	Mountain Gem	200
Star	1400	Republic	1000
Fort Pitt	1200	Henry Clay	1000
Red Wing	1600	Oskaloosa	1000
Red Cloud	600	Comet	1200
Sun Rise	2000	Hard to Beat	1400
Sultana	1200	Henry Clay	1400
Lion Tunnel	1600	Southerly	1000
Bay Patrick	1200	Great West	1200
Silver Dipper	1200	Cave	1000
Wild Cat Tunnel	1200	Silver King	1200
Nero	1200	Joan	1200
Accidental	1000	Homestead	1000
Western Slope	1200	Eclipse, No. 3	600
Bella	1200	Masonic	1000
Jackson	800	Boaz	1200
Bay State	1200	Stanton	1400
Eclipse No. 2	600	Maiden's Blush	1200
Dudley Grey	1200	Confederate	1000
Mountain Chief	1200	Oxford	1800
Virginia	1200	St. John	1400
Star of the East	2000	Rogers	800
Julia	1200	Bingham	1000
Dick Lode	800	Bluff Hart	1000
Bay State	1200	Bluff	1800
Bald Eagle	1000	Roh Roy	1000
Quincy	1200	Helen McGregor	800
Hard Scabbie	800	Jackson, No. 2	1400
Frank H. White	1000	Ben Franklin	800
Pocket Mine	600	Black Spar	1200
Ethan Allen	1000	Chief	600
Shamrock	800	Severe First Ex. West	1000
Gray	1200	Diamond	1200
Mary Ann, No. 2	1000	Gem	1200
Mountain Sheep	1000	San Antonio	1200
Carther	800	Montezuma, No. 2	800
Hohen	1200	Washington	1000
Northumberland	800	Beebe	1000
Rambo	1000	Storm King	1200
Lone Star	1600	Dan Webster	1200
Marlin Lode	1200	Vermillion	1400
Kanabaw	1000	Mittus	1400
Grizzly Bear	800	Rescent	1400
L'Esperance	1000	Sunny South	1000
Tecumseh	1200	Baltic	1000
Atlantic Cable	1000	Zella	1200
Challenge	1000	Severe Day	1600
Chieftain	1000	Julia Jessie	800
St. Clair	600	Kalimopique	800
Cathering	1000	Scrub Oak	800
White Pine, No. 2	2000	Zin Zan Zr Zebrance	800
Mc St. Pierre	1000	Baltimore	1400
Foot Hill	1000	Fremont	1000
McNee	1000	Petaluma	1400
Sharp Mountain	1400	Jaggie	1200
Herschel	1200	Victoria Tunnel	1000
New King	1200	Womans' Rights	1800
Yankee Doodle	1200	Sunbeam	1000
Union Rose	1000	Alameda	800
Greene Bend	1400	St. Louis	1200
Sea Horse	1000	El Dorado, No. 3	1200
White Pine, First Ex-	1200	Fairfield	1200
sion West	1200	Scottish Chief	1200
Canon	1000	West Port	1000
Black Wing	1600	West Side	1000
St. Clair	1200	Olive Branch	800
Web Foot	1000	Alturas	1000
Magnet	1000	Idaho	1000
City of Boston	600	Imperial	800
Boomerang Mine	800	South Aurora	1200
Madison	1600	Horace Greeley	800
Stand By	1000	Eckfeldt	1000
Jewell House	1600	Utah	1800
Mountain Bear	1000		
San Juan	1000		
Merrimack Mine & Co.	800		

SOUTH OPHIR.	
Pine Blossom	1200
Shoo Fly	1000
Leviathan	1000
Gilpin	1400
Nevada	2000
Concord	800
Amsterdam	600
Carlson	600
Crisp	1000
Metropolis	600
Silver Gate	2000
Federal	1200
Rorado	1200
Pioneer	400
White Cloud No. 2	1000
Martini No. 2	1000
Warsaw	1000
East Point	1000
Cerro Gordo	800
Constitution	1000
Eugenia	1000
Gurney	2000
Sucker State	1400
White Cloud	1200
Sweetwater	1000
First Chance	1200
Blue Bells	1000
Last Chance	1200
Angle	1500
Stonewall Jackson	1200
Champion	1800
Ophir Mining Co.	1000
White Bear	1000
Pink Young	600
Mountour	1200
Sonora	1200
Blue Ridge	1200
Memphis	1000
Delaware	1000
Wasp	1200
First Extension of Red	1000
Jacket	1000
Mary Duke	1200
Red Jacket	400
Kingston	400
Peoples	800
Taft Co. and	1000
Ledge	600
New Brunswick	1600
Gladiator	1000
Mercer	1600
Wood	1600
White Mammoth No. 4	1600
Healey	1600
Mount Bernard	1000
Woodward	1600
Antony	1200
Sam Berkley	1600
Empire Ledge & Co.	800
A. S. Gould	800
Kenosha	1600
Georgia	1600
Silver Brick	1000
Mary Lewis	1600
Blucher	1000
Yankee	1000
Silver Shield	1600

The above list is compiled by Wallace & Griffey, of Salt Lake City, and furnished through our resident agent in that city.

THE
SCIENTIFIC PRESS.
FOR 1871.

Will be specially devoted to
Mining, Mechanic Arts, Inventions, and
Home Industries of the Pacific States.

PRINTED ON NEW TYPE,

AND ITS
READING COLUMNS INCREASED,
AND
Otherwise Improved in Value.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement.

CLUBS AT \$3 PER ANNUM
For each name, will be received when ten or more persons are included in sending us their cash in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the Press until they read it. Use your copy of the paper to induce others to subscribe, (if you like it yourself), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & CO., Publishers.

Scientific and Practical
BOOKS

—ON—
MINING, METALLURGY, ETC.

BY GUIDO KUSTEL,
MINING ENGINEER AND METALLURGIST.
Published and Sold by
DEWEY & CO.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurates, Arseniurates, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his specialty.

Price \$2.50 coin, or \$3 currency, postage free.

For single copies of the above works, or for the trade, address
DEWEY & CO.,
Publishers and Patent Agents, Scientific Press Office,
San Francisco.

[No. 2.]

NEW 7-30 GOLD LOAN.

Safe! Profitable! Permanent!

JAY COOKE & CO.

Offer for Sale at Par and Accrued Interest the

First Mortgage Land Grant Gold Bonds

OF THE

NORTHERN PACIFIC R. R. CO.

These bonds are secured, first, by a First Mortgage on the Railroad itself, its rolling stock, and all equipments; second, by a First Mortgage on its entire Land Grant, and we will send back Northern Pacific Bonds at our own risk and without cost to the investor. For further information, pamphlets, maps, etc., call on or address the undersigned, or any of the Banks or Bankers employed to sell this Loan.

The Bonds are free from United States Tax; The Principal and Interest are payable in Gold—the Principal at the end of Thirty years, and the Interest semi-annually, at the rate of Seven and Three-Tenths Per Cent. per annum.

They are issued in denominations of \$100, \$500, \$1,000, \$5,000 and \$10,000.

The Trustees under the Mortgage are Messrs. Jay Cooke, of Philadelphia, and J. Edgar Thomson, President of the Pennsylvania Central Railroad Co.

These Northern Pacific 7-30 Bonds will at all times, before maturity be receivable at Ten Per Cent. Premium (or 1-10), in exchange for the Company's lands at their lowest cash price.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR. 18v20-3m

GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Ridon.

WM. H. TAYLOR.....President.
JOSEPH H. MOORE.....Vice President and Superintendent.
LEWIS E. READ.....Secretary. 24v17-47

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
(4v1) SACRAMENTO CITY

THE

ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street. 16v21-4f

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER-

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 60 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-9y

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

GENERAL MACHINERY

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to.

3v22-3m

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS.

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURED OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

285 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20g

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Con-

necting Rods, Car and Locomotive Axles

and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron 9v143m

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

THOMPSON BROTHERS,

EUREKA FOUNDRY,

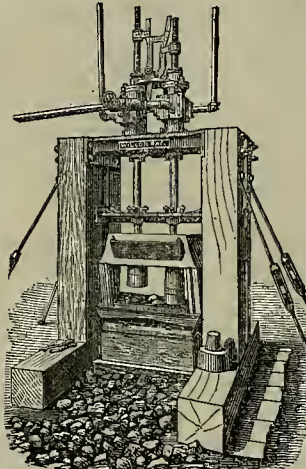
and 131 Beale street, between Mission and Howard

San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

THE WILSON
Patent Steam Stamp Mill



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,

San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patent, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-4f Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated 'Dutch Anchor brand Bolting Cloths; Smeat Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz. 2v22-lyins

41 First st., San Francisco.

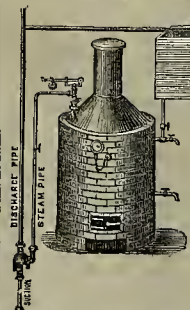
For Steam Pipes & Boilers

Saves 25 per cent. For Sale by BERRY & PLACE,

112 California street, San Francisco. 4v22

STEAM JET PUMP.

Blakeloe & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

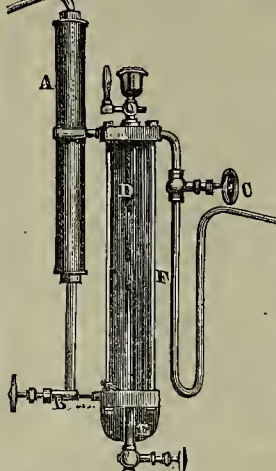
We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,

Southeast cor. Tenth & K Streets, Sacramento City Cal. AGENTS—CHAS. F. BROOK, 117 California st., San Francisco; KEPP & BARON, Stockton. 27v17-4f

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber. E, F, are the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. B, a valve and pipe to introduce water under the lubricator for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel to provide a full supply of clean and pure water for the election of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and G. 1618-4f

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Front Street, San Francisco.

STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the different

sizes always in

store. 4v22

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen.—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

656 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DENVISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 395 Pine St.

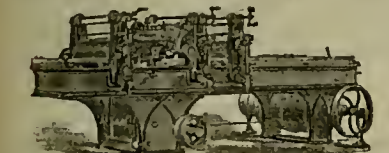
Best means yet discovered for saving fine particles of Gold. 20v21-4f

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
107149

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents,
BERRY & PLACE,
112 and 114 California street, San Francisco.

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition Zinc, and Babblitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and those Couplings and Connections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.
J. H. WREED V. KINGWELL.

The Stetefeldt Furnace.

For information of any description respecting this process,
APPLY TO
STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all Dealers throughout the World.

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand
SPORTING,

MINING,
And **BLASTING**
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

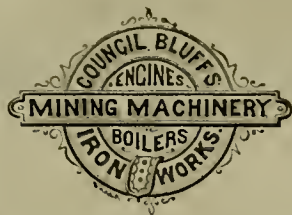
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

FROM THE WEED
\$65 Machines To
Sewing Ma-
chines—the
WHOLE WORLD
being judges—as they
are the LAST, so also
are the BEST! Why?
Because the WEED
Machines To
work and
example
tastier and with more
VARIETY. Buy the
LATEST always. Call
and see S. E. Hoar, 329
Kearney St. S. F., Cal.

PAIN KILLER
PROP.
PERRY DAVIS & SON, PROVIDENCE, R.I.
1840 1870

The PAIN KILLER is by universal consent allowed to have won for itself a reputation unsurpassed in the history of medical preparations. Its instantaneous effect in the eradication and extinction of Pain in all its various forms incident to the human family, and the unsolicited written and verbal testimony of the masses in its favor, have been and are its own best advertisement.
The ingredients of the PAIN KILLER being purely Vegetable, render it a perfectly safe and efficacious remedy taken internally, as well as for external applications, when used according to directions. The stain upon linen from its use is readily removed by washing with alcohol.
This Medicine, justly celebrated for the cure of so many of the afflictions incident to the human family, has now been before the public over THIRTY YEARS, and has found its way into almost every corner of the world; and wherever it has been used, the same opinion is expressed of its medicinal properties.
In any attack, where prompt action upon the system is required, the Pain Killer is invaluable. Its almost instantaneous effect in relieving Pain is truly wonderful; and when used according to directions, is true to its name, a PAIN KILLER.
mch-1m

Eastern Advertisements.



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies, costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box. Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamp in one quarter the power.

Stamp Mills with all late Improvements.

Send for prices and information. Address
C. F. HENDRIE, Prest. R. J. CORY, Secy & Treas.
1v22-3m lvea Council Bluffs Iowa.
[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Successors to
Wm. J. YOUNG & Co. Wm. J. YOUNG & Son,
Wm. J. YOUNG.
[ESTABLISHED 1820.]

MATHEMATICAL
AND
ENGINEERING
INSTRUMENT MANUFACTURERS
At their old location
No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand. Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burt's Solar Compass.
4v-22

BABCOCK
FIRE
EXTINGUISHER.

Over 300 Actual Fires put out with it. More than \$4,000,000 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record." F. W. FARWELL, Sec'y,
123 Washington St., Chicago.
3v22-3ms

LEONARD'S
Patent Vapor Jet Burner and Hand Lamps.
Also, Portable Gas Burners and FIXTURES.
County and State Rights for sale.
Send for Circulars.
Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.
No. 2 3v22-3ms

EVERETT HOUSE,
Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amusement.
The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,

are within one block. The house is NEATLY and ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.
BYRON A. BALDWIN & CO., Proprietors.
2v22-4clmms

FORSMAN
Iron-Old French
Butt-Stone Mills
Are the best for grinding or planing. We build complete mills. Send for Circular.
We are now doing more and better work with the same power than any other.
Stone, 10, 20, 24, and 30 inches.
Weight 450, 650, 1,000 and 1,400 pounds.
Sell all kinds of MILL. FURNISHING.
J. A. FORSMAN, Proprietor.
No. 70 South Canal St. CHICAGO.

SAFES
BANK LOCKS.
VAULT WORK.
HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

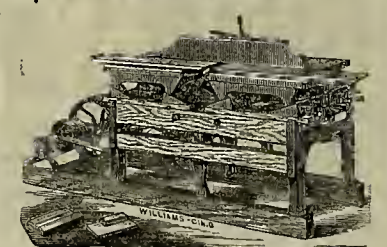
Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Rurglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue and Prices. mall-6m

Improved Universal Wood Worker



FOR
Jointing, Babbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern Invention.

Send for Circular, Etc., to
MCBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mall-6m

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN
China, Glass and Queensware, Lanterns, Looking Glasses &c., &c., 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

Hydraulic
ENGINEERS.
Patentees
AND
Manufacturers
OF THE
Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. mall-6m

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.
Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 AND 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice?
mal-3m

PORTABLE MILLS.

Grist Mill, Two Run of Stone
Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOUR-
ING AND CORN FEED, Bolts, Smut-
ters, Corn Shellers, Flour Pack-
ers, Hominy Mills, Belting, Picks
and Mill Work generally.
SEND FOR DESCRIPTIVE PAM-
PHLET.

ISAAC STRAUB & CO.,
Cincinnati, Ohio.
mall-3m

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Oriental Powder Co.,

MANUFACTURERS OF
Blasting,
Mining, and
Sporting Powder.

Of superior strength and cleanliness.

Patent Compound for Blasting
and Mining.

Electric Batteries, Fuses, and
Leading Wire for Blasting.

Address
A. W. TAYLOR, Agent,
Corinne, Utah.
Send for Circulars. 18v21-lam21

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco
2v21-1f

To Inventors in the Pacific States.

The best, speediest, and surest method for you to obtain patents, file caveats, or transact any other important business with the Patent Office at Washington, or with foreign countries, is through the agency of DEWEY & CO., PUBLISHERS OF THE SCIENTIFIC PRESS, SAN FRANCISCO, an able, responsible, and long-established firm, and the principal agents on this side of the continent. They refer to the thousands of inventors who have patronized them, and to all prominent business men of the Pacific Coast, who are more or less familiar with their reputation as straightforward journalists and patent solicitors and counsellors.

We not only more readily apprehend the points and secure much more fully and quickly the patents for our home inventors, but with the influence of our carefully read and extensively circulated journals, we are enabled to illustrate the intrinsic merits of their patents, and secure a due reward to the inventor, besides serving the public who are more ready to give a fair trial, and adopt a good thing, upon the recommendation of honest and intelligent publishers.

To Obtain a Patent,

A well-constructed model is generally first needed, if the invention can well be illustrated. It must not exceed 12 inches in length or height. When practicable, a smaller model is even more desirable. Paint or engrave the name of the article, and the name of the inventor, and his address upon it.

Send the model (by express or other reliable conveyance), plainly addressed, to "DEWEY & CO., SCIENTIFIC PRESS OFFICE SAN FRANCISCO." At the same time, send a full description, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operations.

Also send \$15 currency, amount of first fee of the Government. The case will be placed on our regular file, the drawings executed, and the documents made up, and soon sent to the inventor for signing.

As soon as signed and returned to us with the fees then due us, it will be sent straightway to the Patent Office at Washington.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case, the applicant has only to send us an exact description, and what is desirable to claim.

For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances for design patents two photographs, with the negative, answer well instead of drawings.

We do not require the personal attendance of the inventor, unless the invention is one of great complication. Usually the business can be well done by correspondence.

For filing a caveat, which affords the inventor protection for one year, we only require a rough sketch, and a clear description of the invention.

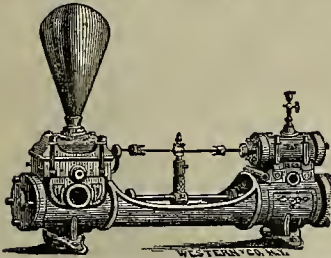
It will cost inventors less to have their business thoroughly and speedily done through our agency than to patronize less able and responsible agents.

For further information, send a stamp for our illustrated circular, containing a digest of PATENT LAWS 112 illustrated mechanical movements and HINTS and INSTRUCTIONS regarding the RIGHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAWS of 1870.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Scientific Press and the Pacific Rural Press, San Francisco.

A. L. FISH, Agent, KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

Sonora Hotel,

T. BRODIGAN, Proprietor
Best Meals and Beds in Sonora, Cal. fe25-3m

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufactory cost to parties buying County or State Rights. The profits on a few Presses will pay for a county Right.

New England Spring Bed.

The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

Tarbox's Combination Stencil Alphabet.

By the use of this ingenious device, ANY NAME OR NUMBER can be marked well and perfectly, thus saving the necessity of having a number of different plates. The exclusive right to sell said invention in California, and also a small stock of Plates, for sale at a low price. Send for Circular, or call and examine the Plates.

A Local Agent Wanted

In every town on the Pacific Coast to sell Valuable Small Inventions.

WIESTER & CO.,

17 New Montgomery Street, (Grand Hotel), San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco.

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIMB.

Mr. J. H. GRILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-1f

BAIRD'S

BOOKS

FOR PRACTICAL MEN.

My new and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, 82 pages, 8vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St., PHILADELPHIA.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,

519 Front street, San Francisco, by contract or otherwise.
Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-16p

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

MANUFACTURERS:—J. WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., and Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tullie's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both Hubbard, Bue, & Co. and Lippencott & Co.

Also, SHOVELS, AXES and SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-1f Pittsburgh, Pa.

MAGAZINES.	P. An.	
Harper's.....	\$4 00	
Atlantic.....		
Godey.....		
New York Ledger.....		
Blackwood.....		
Hours at Home.....		
Good Words.....	3 00	
Peterson's.....		
Arthur.....		
Lady's Friend.....	5 00	
Harper's Weekly.....		
Cum gratia Corner.....		
Literary Album.....	6 00	
London Society.....		
All the Year Round.....	15 00	
London Ill. News.....		

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and

Washington streets,

SUPPLIES ALL

Eastern Periodicals,

BY THE

Year, Month, or Number.

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

O. J. KING, B. KIMBALL, P. D. CODE.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,

KETCHUP, SAUCES,

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street.,

Between Jackson and Pacific, San Francisco. [16p

W. T. GARRATT & CO.

CITY



Brass and Bell Founder,



Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,

TAVERN and HAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1f

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,

Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER WHITE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

Pacific Insurance Company.
No. 422 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire and Marine Insurance.

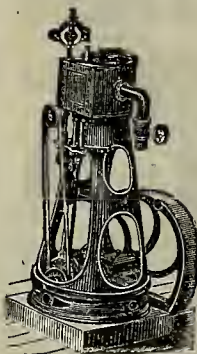
J. HUNT, President.
WM. ALVORD, Vice-President.

A. J. RALSTON, Secretary
A. BAIRD, Marine Secretary.

RIDER'S Automatic Cut-off Vertical Engines

Manufactured by the Albany St. Iron Works, NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-ly16p



PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

26 Bond street, New York.

Platinum Scrap and Ore purchased. 5v20-ly16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 1, 1871.

VOLUME XXII.
Number 13.

Boiler Feed Regulator and Low Water Alarm.

The necessity of some such device, for the sake of safety, as that here illustrated ought not to exist. That it does, however, in practice, is attested every day. The device is useful, moreover, not only for the sake of safety, but also for economical reasons, and hence its adoption is to be urged.

The machine, Berryman's automatic boiler feed regulator and low water alarm, depends for its action upon the weight of water contained in a metal globe outside the boiler. The construction of the apparatus is such that it does not require the nice adjustment necessary in many devices for the same purpose, but is simple and, at the same time, apparently most reliable. Its merits can be judged of from the following description. The highest testimonials are given. Fig 2 shows the boiler-feed regulator. In this form of the machine, pipes, *c* and *a*, connect the interior of the globe, *B*, with the interior of the boiler; the end of the pipe, *a*, called the discharge pipe, descending below the low-water line, and that of the pipe, *c*, descending to this line. It is evident if the air contained in the pipes and globe, *B*, be allowed to pass through a pet-cock in the top of the globe, and the boiler be filled to the proper level, that, as soon as steam is raised in the boiler, water will be forced up along the pipes, *a* and *c*, by the accumulating pressure of steam, and fill the globe, *B*.

This globe is suspended on one end of a counterpoised lever, *L*. As soon as it is weighted with water, it overbalances the counterpoise, *H*, which rises. This action operates, by means of *e* and *h*, to close or partially close a valve in the steam pipe which supplies the pump, thereby checking the action of the pump and stopping the flow of water into the boiler. As soon, however, as the water in the boiler lowers through evaporation so that the end of the pipe, *c*, is uncovered, steam enters this pipe, and the water in the globe, *B*, descends by its own gravity to the boiler. The counterpoise on the lever, *L*, now overbalances the weight of the globe. The lever, *L*, oscillates to the original position, operating through the lever, *h*, to open the valve in the pipe, letting the steam into the steam cylinder of the pump, and setting the latter into action to supply water to the boiler again. As soon as the water now rises to close the mouth of the

pipe, *c*, steam no longer enters this pipe. The steam in the globe, *B*, condenses, and the pressure of steam in the boiler again forces water up the pipes, filling the globe, which again descending cuts off steam from the pump and checks the supply of water to the boiler. In this way the supply of water is constantly regulated within certain limits depending altogether upon the position of the counterpoise on the lever, *L*, which may be set so that the globe will descend when only partially filled with water, if such action be found desirable.

The regulator can be applied to any kind of boiler. The manufacturers assert that it will, in most boilers, allow not over one-eighth of an inch variation of

though it does not cause explosion in such boilers, does cause great loss of time and money. Several boilers fed by one pump, can be regulated by a regulator on each boiler.

Fig. 1 shows another modification, whereby a whistle, *O*, is sounded by opening of its valve through the medium of the chain, *M*, and the lever, *N*. This occurs whenever the water falls below the mouth of the pipe, *B*, and continues until the water rises enough to cover it.

The manufacturers say: In using the regulator, it must be borne in mind that we are not responsible for the

water not being kept at its proper level, if by any means the pump should draw air or break down, or the water supply

must act separately, and with them on any boiler it will be impossible to have low water to a dangerous extent if the alarm is heeded.

The manufacturers will be pleased to receive an order from a responsible house for one of each device for trial, which can be made at their risk and expense, if not entirely satisfactory. Agents on this coast are wanted. For further particulars, address R. N. Pratt, Secretary and Treasurer Berryman Regulator and Alarm Company, Hartford, Connecticut.

COLORADO DEEP PLACERS.—According to the *Colorado Miner*, attention is being gradually turned towards the deposits of pay gravel found in various parts of that Territory. These deposits, although not rich in the general acceptance of the term, can yet probably be made to pay well with the proper methods. River mining in such streams as the Blue and Swan, in Summit county, the Platte and its feeders, in Park county, and the Arkansas and its tributaries, in Lake county, must soon commence.

GOLD REFINING BY CHLORINE.—We have previously noticed the introduction of the Miller process at the Philadelphia Mint. The *Jour. Franklin Institute* says that very satisfactory results have been obtained. A bar of some 500 ounces, containing antimony which rendered it very brittle, and 780 fine, was refined in 1½ hours to a fineness of 997 and made perfectly tough, every trace of antimony having been removed. The impure gold is melted in a crucible previously saturated with melted borax, and having a layer of fused borax over the metal. The gas is generated in a stone-ware vessel, and led by a flexible hose to a pipe-clay tube, by which it is carried to the bottom of the metal. All the chlorides of antimony, tin, etc., are volatilized away, the silver chloride is retained by the layer of borax and panned off after the gold has become solid in cooling. This chloride is cast in flat plates and arranged in a box or frame, with alternate layers of zinc coupled as for a galvanic battery.

The whole being immersed in water, a galvanic action is set up, the reduction is soon finished, and the silver is so compact and free from zinc that it is ready for the melting pots.

AN INTERNATIONAL EXHIBITION will be held in London, commencing on the first of May.

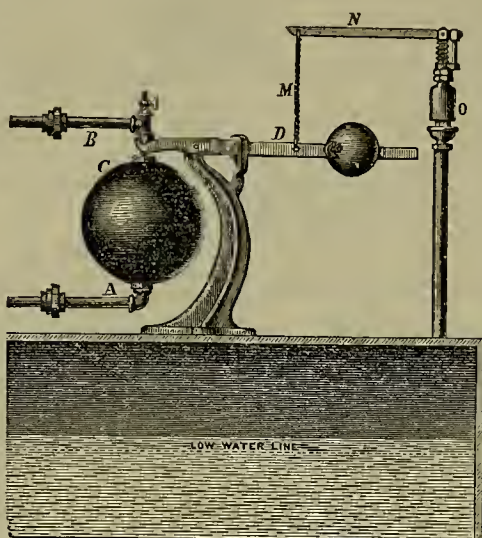


Fig. 1. LOW WATER ALARM.

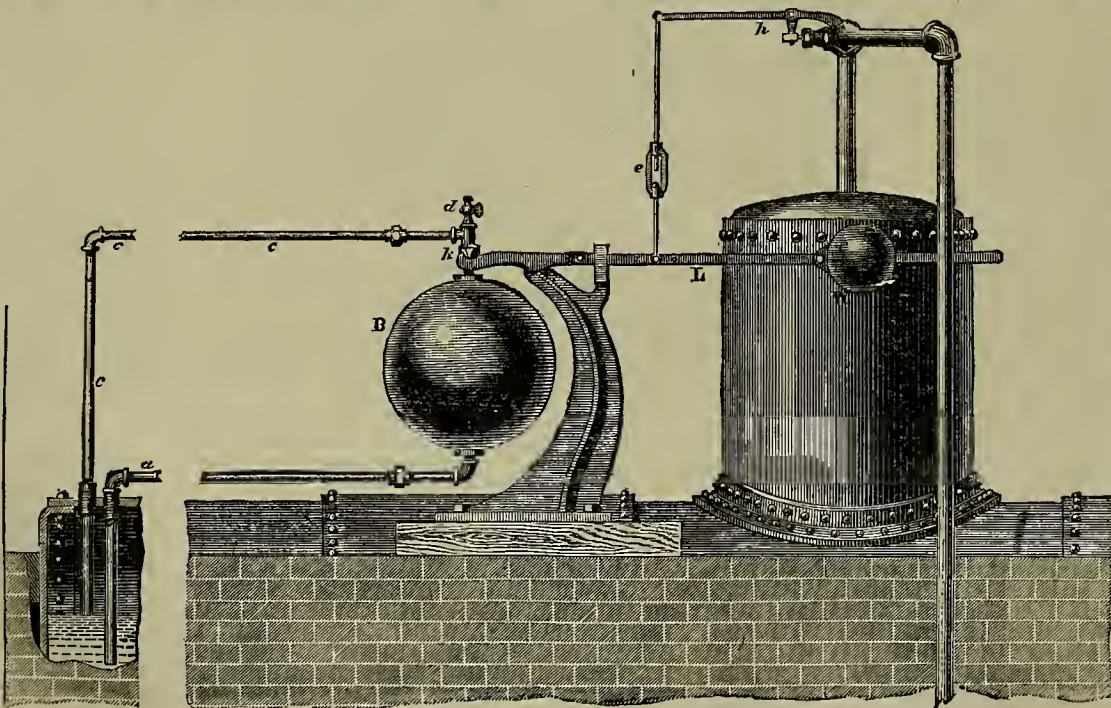


Fig. 2. BERRYMAN'S AUTOMATIC BOILER FEED REGULATOR.

water level. Consequently it saves a large amount of fuel—keeps the boilers from the constant expansion and contraction incident to the usual method of feeding, and directly and indirectly, by these means, would prevent many of the explosions that are constantly taking place. It is a safeguard against the constant burning of boilers, by the water getting low, which,

by any means be cut off; but we do guarantee the regulator to do its duty, if properly used, as any machine must be to perform its functions. But suppose the water supply should be cut off, or the pump break, etc., etc. If the low water alarm is connected at a lower level than the regulator, it will notify promptly of the accident to the pump. The two machines

MECHANICAL PROGRESS.

PNEUMATIC MAIL TUBES.—The following description is from Gardiner Greene Hubbard's late memorial on the subject of postal telegraph: "Twelve of the principal offices in Paris are connected by these tubes. The carrier consists of a brass box, shaped like a clock weight, placed inside a tightly-fitting case of hard leather. After many experiments this form has been found the best adapted for the service. The messages are placed with addressed envelopes in the carrier, together with a list, showing the number and destinations of the messages. The carrier stops at every office on the route, that messages may be taken out and others put in. Each office is furnished with a Morse instrument and line wire. There is one main circuit 21,497 feet in length, two secondary, 17,350 feet and 16,617 feet, and a branch line 3,712 feet, making a total of 59,182 feet, or eleven miles. "The trains" start from the central station every 15 minutes, and make the circuit in about 14 minutes, stopping at five offices. In London two methods have been adopted: one consists of a circuit or continuous tube leading from the central telegraph office to the general post office, and back to the starting place; the other of single tubes leading to separate offices. These tubes are of lead, about one and a half inches in diameter, and are enclosed in iron pipes for protection. The carrier is a small cylinder of gutta percha, covered with cotton. Two, or even three, are sent at the same time. The transit occupies about one half a minute through the longest tube, 3,600 feet in length. A constant movement of the carriers is kept up in the circuit in both directions; they are placed in a loop of the main pipe, which is closed, and a valve opened into the main pipe, and by the same movement a column of compressed air is let in behind the carrier, which propels it through the tube into a similar loop at the other office. Another carrier can at the same time be sent from the other office, the air being exhausted from the tube. The single tubes are operated in the same way. The carriers are sent by pressure, and returned through a vacuum. One engine only is required, which is at the central office."

HIGH SPEED FOR WOOD-WORKING MACHINERY.—The *London Engineer* for February 24th, gives notes of a visit by invitation to the works of Messrs. Allen Ransome & Co., Chelsea. We quote: "Messrs. Ransome & Co. have for some time past adopted a principle of construction which is almost peculiar to themselves. It consists essentially in driving all their wood-shaping machines, and many of their wood-cutting machines, at an excessively high velocity. Thus the fly cutters of the moulding machine, which we illustrated in a former impression, run at not less than 7,000 revolutions per minute when the machine is going at full speed; and the reciprocating screws of a new double deal frame make 450 double strokes per minute. The fact that such high speeds can be maintained for hours at a time without the heating of a bearing, or the failure of any portion of the apparatus is the very best proof that can be produced of excellence of design, material, and workmanship. These excessive speeds are only practicable when the machinery is the best that it is possible to make. The slightest want of truth in the fittings or lack of balance in the rotary portions of the mechanism would very quickly bring the whole machine to grief. It is certain, therefore, that if the cutters of a general joiner or a moulding machine can be run at 5,000 or 7,000 revolutions per minute for even an hour without heating or breaking down, the whole machine must be thoroughly sound and good."

LOCOMOTIVES AND ROAD STEAMERS IN NEW JERSEY.—The *Artisan* of March 15th says the Grant Works, at Patterson, are turning out ten of Thompson's road steamers per month. Of the Rogers' Works, it says:—"At present, the works are in full blast, with a force of over 900. For the last few years from 120 to 150 engines per annum have been turned out, and at the present they are building from 12 to 15 a month." The Danforth works employ between 600 and 700 men, and turn out six or seven locomotives monthly, in addition to a large amount of cotton machinery. For this last they have a large order from Mexico.

TEST OF THE ALLEN ENGINE.—The *American Artisan* for March 15th has advanced sheets of the report of experiments made at the late Fair of the American Institute, to determine the economy and effective power of this engine. We quote the result:—"The coal burned for the Allen engine, divided by 52.36 per cent. of the power exerted by the steam, gives a quotient that is just the mean of those obtained by dividing the coal burned for the Corliss and the Babcock & Wilcox engines by 66 per cent. of the power exerted in them; and the coal burned in each case, divided by the total power exerted, shows a consumption, for the Allen engine, of 1.5 lbs. per horse-power per hour, against a consumption of 1.87 lbs. for the Babcock & Wilcox, and of 1.9 lbs. for the Corliss engine. This economy is believed to be without precedent, except in cases where steam has been expanded in two or more cylinders, and reheated on the passage." In speaking of the results as thus reported to them by the superintendent, the judges—comprising Dr. F. A. P. Barnard, Robert Weir, and Thomas J. Sloan—use the following language:—"The performance of this engine (the Allen) has exceeded that of the two fine engines which were on trial here last year. The results seem to be without precedent in such engines. The engine ran from eleven to twelve hours repeatedly without showing a sign of a warm bearing, displaying thorough perfection in all its parts. In all respects, the engine is first-class, and from the fact of its presenting weight with speed as a requisite for perfection in steam engines, it has opened a new era in this necessary branch—its economy having been clearly demonstrated in the careful trials, which ought to be published in full."

EXPRESS LOCOMOTIVE FOR THE GREAT NORTHERN RAILWAY.—*Engineering* for Feb. 24th describes an engine with proportionally larger cylinders than ever before constructed, built for the above named road, and now so satisfactorily proved that several more of the same sort are building. We quote:—"This engine has outside cylinders 18 inches in diameter with 28 inch stroke, and the driving wheels are 8 feet 1 inch in diameter. Taking the diameter of the driving wheels with the tyres half worn, as 8 feet, the tractive force which the engine is capable of exerting will be 108 lbs. for each pound of effective pressure per square inch on the pistons, an amount nearly one-third greater than that of the engines formerly described by us. The stroke, namely, 28 inches, is longer than that of any passenger locomotives with which we are acquainted, and this length of stroke enables a high speed of piston to be maintained, notwithstanding the large size of the driving wheels. In fact, when the engine we are describing is running at a speed of 60 miles per hour, the piston speed is as great as that of the 7 feet wheel engines, when running at a speed of 61¼ miles per hour."

IRON TENDER FRAME.—The *Chicago Railroad Gazette* of March 18th describes the iron frame for tenders patented by Mr. Healey of the Rhode Island Locomotive Works. It is of channel iron with lateral braces riveted thereto. Mr. Healey writes that a frame of this kind will weigh about 1,000 lbs. less than an ordinary wooden frame of the same size, and he claims that they are not only lighter but more durable than frames constructed in the ordinary manner, either of wood or iron, but cost less. They have been tested in a number of collisions, and have in all cases, not only sustained little or no damage themselves, but have saved the tank from injury. "Some of the New England roads are replacing their wooden tender frames with iron as fast as they need renewal. Two hundred and fifty of them are now in use."

IRON SMELTING AT OMAHA.—The foreman of the Union Pacific R. R. Co.'s shops has devised a furnace which dispenses with the blower. The *Omaha Herald* says "the new furnace has about half-way up a steam supply-pipe, that introduces into the interior of the flue about a dozen jets of steam. This steam creates a vacuum that draws the blast through the live coal below with tremendous velocity; securing by such simple means the intense heat necessary for smelting the metal. The new furnace has been running now about two weeks, and is so great a success that several more are to be constructed, and the old furnaces entirely abandoned. The iron ore of the Black Hills will be smelted upon the spot. It yields a heavy percentage of superior metal, and coal is abundant."

SCIENTIFIC PROGRESS.

EFFECT OF LIGHT AT DIFFERENT SEA-DEPTHS.—An instrument for testing the depth to which the actinic rays of light can penetrate, devised by Mr. Siemens, was recently tested in Gibraltar Harbor by Dr. Carpenter. The action of the sea water upon it, however,—increased as it was by the galvanic current arising from the contact of iron and brass in the mechanism,—interfered in some degree with its working, and it is to be reconstructed and again tested. We copy a description of it:—"The foundation of the apparatus is a horizontal wheel with three radii, each of them carrying a glass tube in which a piece of sensitised paper is sealed up. The rotation of this wheel round a vertical axis brings each of the tubes in succession out of a dark chamber in which it ordinarily lies, exposes it to light in an uncovered space, and then carries it into darkness again. This movement is produced by a spring; but it is regulated by a detent that projects from the keeper of an electromagnet, which is made and unmade by the completion or breaking of a circuit that connects it with a galvanic battery. When the magnet is made, it lifts the keeper with its projecting detent; and this allows the wheel to be carried by the spring through one-sixth of its rotation, whereby the first of the tubes is brought out into the open space. There it remains until the circuit is broken, whereby the magnet is unmade; the keeper then falls, and the wheel is allowed to move through another sixth of a rotation, so as to carry on the tube into the dark chamber. A repetition of the making and unmaking of the magnet brings out the second tube, and shuts it up again; and another repetition does the like with the third tube. This apparatus, with a deep sea lead attached to it, is suspended by an insulating cable that contains the wires whereby it is connected with the battery in the vessel. Being lowered down to any desired depth, the circuit is completed, the magnet made, and one of the tubes exposed for as long a time as may be wished; the circuit is then broken, the magnet unmade, and the tube shut up again. The second tube may be exposed for a longer time in the same place, or the apparatus may be lowered to a greater depth, at which the experiment may be repeated; and the third tube may then be dealt with in like manner."

IMPROVEMENTS IN MICROSCOPES.—Dr. Royston Pigott has been experimenting for some years upon this subject, and has during the past year published some account of his researches. We give a paragraph from an article by "E. R. L." in a late number of *Nature*:—"Dr. Pigott found the usual means of testing an object-glass by trying if it gave some particular appearance with a 'test object,' such as the Podura-scale, very unsatisfactory, since we have no certainty to begin with as to what is the true appearance of such an object. He therefore examined minute images of objects of which he knew the true form, such as a watch-face or thermometer-scale, forming these images by aid of mercurial globules, and the condenser properly adjusted below the microscope-field. By this means he has found that object-glasses corrected so as to show dark, sharply marked spines (like ! ! !) on the Podura-scale—a favorite test-object with our microscope-makers—give false, blurred and distorted appearances with his known images, and on making such corrections of the objective as to show the known images in their true form, he finds that the Podura-scale, examined with the corrected objective, is not really marked at all, as supposed, but is beset with a series of bead-markings, which by intersection, when improperly defined, give the curious appearance like notes of exclamation. This important discovery of the falsity of our high powers (one-eighth to one-sixteenth) has led Dr. Royston Pigott to pay more attention to the lower powers, and he finds that though you may not get so much actual amplification, you yet get a truer effect, and greater clearness of detail, by employing very carefully made low powers (one-second to one-fifteenth) and increasing the magnifying power at the other end of the microscope, i. e., the eyepiece. We have in this way seen the beaded structure of the scales of Podura more satisfactorily than with very high objectives, even when corrected so far as they would admit, and we may say the same of some Diatom-valves e. g., *Pyl. formosum*. It would be most important to know how far such a change of combination would be useful in histological work."

NEW FORM OF MAGIC LANTERN.—At a late meeting of the Polytechnic Club of the American Institute, Prof. Morton,—says the *N. Y. Engineering*,—exhibited a new arrangement of the magic lantern, adapted to the exhibition, upon a vertical screen, of horizontal objects, making it possible for large numbers of persons to witness at once phenomena which heretofore it has been impossible to show. The rays from the lime-light pass horizontally through two condensing lenses, then strike a mirror at an angle of 45°, and pass directly up, where they pass through the object, resting immediately upon the last part of the condenser. After passing through the objective they are again reflected by a mirror at an angle of 45°, and pass horizontally to the screen. Heretofore it has been customary to have the first reflection after the rays leave the condensing lenses, the result being that they make a long cone, and by the time they reach the objective, are not in a fit condition to throw an image on the screen. A squire prism will not answer for a reflector, for all the rays will not strike it at such an angle as to be totally reflected, and the consequence will be that one side of the field will be in the shade. The lantern being adjusted, Prof. M. illustrated its use. Placing a small magnet upon the condenser, and above it a glass plate, covered with a thin layer of iron filings, by tapping gently upon the glass, the particles were seen to arrange themselves in symmetrical curves around the poles of the magnet. He next showed the motion of the waves. By projecting air through a minute nozzle upon the surface of the water in a circular vessel, the waves were shown to be reflected from the edge of the vessel. Placing the nozzle one side of the center, the interference of the waves from the opposite sides was shown. Substituting for the circular vessel of water one of elliptical form, the effect of the form was shown, forming various caustic curves, and if the point of impulse was at one focus, showing the meeting of the waves at the opposite focus. Various cohesion figures were also shown.

DARWIN ON CONSCIENCE.—To undeceive those who suppose Darwin an atheist, we give an extract from George Ripley's review of his new hook in the *Tribune*:—"Whatever judgment may be pronounced as to the tendency of Mr. Darwin's views of the origin of man to humble the natural pride of ancestry, we ought not to lose sight of the fact that no philosophical writer of the present day sets forth a more exalted conception of the actual faculties and endowments of the race as developed under the highest forms of moral and religious culture in the progress of civilization. He almost goes out of his way to do justice to the ideas and beliefs which have been regarded by the wisest thinkers in every age as the crowning glory of humanity. In this respect, his system presents a favorable contrast to the shallow, sensualistic, French philosophy of the eighteenth century, which resolves the most refined sentiments of our nature into fleshly illusions. 'The question,' says Mr. Darwin, 'whether there exists a Creator and Ruler of the Universe, has been answered in the affirmative by the highest intellects that have ever lived. I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals, the moral sense or conscience is by far the most important.'"

THEORY OF GLACIAL MOTION.—Our readers will recollect the notice of Mr. Croll's theory that glaciers descend by the action of heat upon the molecules of the ice, loosening them momentarily from their cohesion, and allowing them to be re-arranged under the influence of gravity; the motion therefore being of molecule by molecule, rather than in mass. Of this Mr. Alfred Wallace remarks in *Nature* for Feb. 16th:—"It seems very doubtful if this theory is more tenable than the one it is intended to supersede. If heat entering the glacier loosens the molecules in its passage and enables them to move insensibly into new positions, it is difficult to understand what causes the numerous longitudinal and transverse fissures of a glacier, the production of which is often attended by loud reports, and which indicate movements of masses, not of molecules. And how could molecular motion lead to that heavy grinding of the ice over its bed, which scores and wears down the hardest rocks, and whitens great rivers with the finely triturated mud?"

CORRESPONDENCE.

The San Diego Mines.

[Written for the Press.]
Julian District.

In the Julian Mining District (San Diego county), a great number of claims have been recorded, and new discoveries have been made, almost weekly. Those showing the most work done, and the largest yield of gold, are the Owens, Helvetia, Washington, California, Hayden, Van Wirt, Good Hope, San Diego, North American and Stonewall Jackson. Near the latter, on the Cuyamaca grant, prospectors for placer claims have found considerable quantities of float quartz, which has paid wages for working. The Helvetia is the widest ledge and is worked without blasting; it has yielded, without sorting the quartz, twenty to twenty-five dollars per ton. The Hayden, Owens and Washington have given the highest yield, the two former reaching about fifty dollars per ton, and the latter as high as one hundred, at the mills in the district, but this yield was from carefully sorted lots. The first lot worked in San Francisco from the Washington yielded over four hundred dollars per ton. This was the cropping of a rich streak. Another rich streak, fifty feet from the first, has been discovered, and traced sixty feet below the surface, with a dip almost the same as the first. Without including these "streaks," a run on the ledge has paid over twenty dollars to the ton, and other ledges about the same. The country rock in the Washington is harder than in the others, except the San Diego, and hence has required a greater expenditure of time and money for the same amount of work. Nearly all the mines named have shafts down fifty to seventy-five feet. The veins continue without material change, except showing more sulphurets and indications of silver, the walls as a rule becoming more obstinate, and developing into a sort of iron rock—iron and quartz predominating in it. Two quartz mills are in operation, although neither are doing first-class work. Another has been dragging its slow length along, its owners learning at the most expensive school—experience. There is a prospect now that it will hold out better things to the district. Six to eight dollars per ton have been the prices for milling.

Bauner District.

The first mill, erected by James McMechan of San Francisco, who has become the best abused man in that vicinity, was removed last winter to the San Felipe cañon. This is now known as the "Bauner District," one thousand feet or more below the altitude of Julian, and four miles east. The ledges are probably the eastern extensions of the Julian veins. The Redman ledge was the first discovery in that locality, and six claims, of one thousand feet each, have been located on it. The Antelope, Atlantic cable and others in the district, are also good mines. By the arastra process, several hundred dollars to the ton have been taken from different claims, the rock doubtless more or less culled. The first yield of the Redman at the McMechan mill was about fifty dollars to the ton. Chester Gunn, of San Francisco, the amalgamator at this mill, has introduced some improvements in saving the gold, which make it by far the best appointed mill in either district.

A five-stamp mill of rude structure was also in operation here, a three-stamp mill in process of erection, and some half-dozen arastras doing good work. The watchword seems to be, "on to the desert," as "rich mines" have lately been discovered three miles east of the Redman, and more recently some still east of those. "India's golden sands" may come home to the Colorado plain after all.

The mines in Bauner District have a greater alloy of silver with the gold; hence the lullion is worth some two dollars less per ounce than that from the mines west of the summit at Julian. Though the permanency of the ledges is established, their full development must await more skill and capital. These wait on a change of ownership, which itself waits on the faith which moves the hand that holds the money. "S."

Bull Run District, Nevada.

[Written for the Press.]

EDS. PRESS.—Notwithstanding the cold and snow, mining operations have been carried on throughout the winter to a greater extent than was previously thought possible. This has resulted to the advantage of the owners of claims and will induce the more speedy erection of mills here. We have now sufficient ore on hand to keep a 10-stamp mill running for eight months.

The Nevada company have just tapped their ledge (at a depth of 100 feet) after running a tunnel 125 feet long. The ledge is from four to six feet wide and shows better ore than that obtained at the surface. The boys have thousands of tons of \$100 to \$250 rock and could supply a mill with 10 to 18 tons daily. The Johnson company are taking out very good ore from their mine. J. F. Chellis has out the Rising

highest point would be at least 1,000 feet lower than the summit now crossed in going to Mountain City.

BULL RUN MINER.

Bull Run, March 5, 1871.

A People On Stilts.

In the low lands of France, to the south of Bordeaux, and especially in the "lands" of Medoc, is found a curious race of people, mostly shopkeepers, with many fishermen along the sea shore, who have adopted the curious custom of almost universally employing the device known as stilts, as a means of locomotion. Men, women and children are all alike accustomed to this style of going about. The children soon become so accustomed to it as to know no fear, and the women employ it as generally as the men.

The pictures of Rosa Bonheur have made the reading public quite familiar with the



A SHEPHERD OF MEDOC ON STILTS.

Sun, at a depth of about 120 feet, with a tunnel 230 feet long, and has found the ore better at this depth than at the surface. He will run in the tunnel 160 feet further, at which point it will tap the Monument ledge. Other claims are being worked with favorable results.

While not wishing to boast concerning our mines, we think we can say with truth that no district in this State can show better prospects than ours for the work performed. We refer for proof to the returns from ores shipped to the Anhorn Mill, Reno, and elsewhere.

One great inconvenience of our place is that we have no direct mail hither, notwithstanding the fact that a petition, signed by over 500 men, has been sent to the Post-Master General asking that a post office be established here; also that a stage route be established from Beowawe, on the C. P. R. R., running through Tuscarora, Independence and Bull Run to Mountain City. This would be a more level and better winter route, and no longer, than one direct from Elko to Mountain City, while it would accommodate the above-named places. The road would at no season of the year be covered with over 12 inches of snow, while that from Elko has sometimes in winter from three to five feet, and its

singular habits of the people of those countries. The first time that a group of these singular people is seen by the observer, a curious emotion comes over his mind, as of a strange prodigy. When they first came in sight, near the horizon, and are gradually lifted into view, they look much like gigantic crickets creeping slowly along, or making preparations for a spring. As they are observed near at hand, stepping listlessly about, handling with the utmost address the long stick which they use for a balancing pole, when they are moving, and as a rest for the arm or person when they are not in motion, they present a truly curious and unique appearance.

The individual herewith represented, has dropped his satchel and canteen by his side, and taken his seat on the end of his balancing pole, while his faithful shepherd dog sits by his side, waiting for the word of command to gather up the sheep, if they stray too far. He has taken out his knitting work, which is always carried about by the shepherds, with which to make the most of their leisure hours, and is busily plying his needles, while his eyes are constantly cast about over the plain, watching the movements of his flock. As you approach, you will notice that he is dressed in well-worn sheep skin garments with

flaunting hat, well calculated to shade his neck and face from the sun, or shed the water when exposed to the falling rain. Take him altogether, he is about as curious a looking human as one will meet with in traveling the wide world over.

Family and social groups of these weird-looking beings are often seen in great numbers congregated on the sea shore, the old men and women and children watching the fishermen as they are hauling or setting their nets.

The origin of stilts is unknown, but it is probable that they were not in use before the middle ages, as ancient authors make no mention of them. In the language of the country we have described, they are called *chaque*, which would seem to fix their origin in the period of the rule of the English, deriving it from our word shank. Probably some inventive English mind gave them this serviceable mode of progression.

Perched on these borrowed legs, the shepherd watches over his charge, concealed, perhaps, in the brushwood, or crosses uninjured the marshes and quicksands, with no fear of being torn by thorns or dry twigs; while he can at any time double the speed at which he ordinarily walks. The women, who are invariably dressed in black, look like large ravens perched on dead branches. Whether this singular habit of locomotion has any effect on the character, cannot be decided; but certain it is that these people are distinguished by their wild, savage nature. They have a horror of strangers; and when they perceive a traveler coming toward them, they hasten to flee into concealment.

NOTES OF TRAVEL IN CALAVERAS AND IN TUOLUMNE.—In the communication from "L. P. Mc," published March 18th, a typographical error occurred. The pressure of the water at the Alexandria mine should have been given as 340 feet. The superintendent of the Gwin mine is Mr. Wm. M. Gwin, Jr. In the letter published March 4th, the name of the superintendent of the Confidence mine should have been given as L. Gilson, instead of L. Gibson.

The Gates of Puget Sound.

The Pillars of Hercules, on which swing the gates of inlet and outlet to the Mediterranean sea, are but the posts of a wicket compared to the gigantic portals of De Fuca. The width of the entrance is fourteen miles. The northern gate-post, Cape Bonilla, is the seaward buttress of a range of mountains, some of which are 6,000 to 7,000 feet high. They are covered with fir trees to the summit. Cape Flattery, the headland on the south, is a wonder that men in the various sections of the United States should travel around the globe to see. It is the termination of the snow-clad Olympic range. Where it breaks down into the ocean, it is a perpendicular wall one hundred feet high, of jagged, contorted rock, a conglomerate of boulders of basaltic heath-sand, round cobble-stones, and pebbles, solidified into the hardness of adamant. The material presents the resistance of flint. But a force of nature in some far-back age cracked, broke, and deranged it, as a man with the grip of his fingers would splinter an army biscuit. Immense blocks stand detached in every position. Down beneath them the sea has for centuries been drilling and boring into the rock, and has made vast and deep grottoes, and arches, and colonnades, into which the tides ebb and flow, and where the seals live and love and raise families of baby seals, and where violet-colored cormorants, petrels, guillemots, harlequin ducks, and muros make nests and make music of a deliciousness that money cannot buy. And, unparalleled beauty, all around this gate-post of the entrance to Puget Sound, in white foam, down into the sea, descend cascades of water from the summits of the cliffs. Lichens and mosses grow on the rocks, above the swell of the waves. From the upper tide-levels down, hang fringes of sea-weeds in the greatest variety and the utmost profusion. Above these are hanks of blue flowers, which in great patches change the jagged rocks into soft blue sky.—S. Wilkeson in the Christian Union.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, March 18th: The Schenectady Co. are examining the Whelpley & Storer furnace, with a view to its use in the mill to be built. The mine is turning out good ore.... Good ore is coming out of both upper and lower tunnels of the Monitor & N. W. mine, and men will be put at work on the additions to the mill next week... The crushing and concentrating machinery of the Glohe work well, and the furnace will start up on Monday.

AMADOR COUNTY.

THE ZELLIE MINE.—*Ledger*, March 25th: At last, after sinking to the depth of five hundred feet, the "black gouge" has been struck and a decided improvement is perceptible in the ore. Another contract is to be let to sink the shaft one hundred feet deeper.

CALAVERAS COUNTY.

MINE SOLD.—*Chronicle*, March 25th: Lewis & Bros., of the "Big Mine" near Railroad Flat have sold it to parties in San Francisco, for \$25,000 in gold coin. There is no hump about this, no waiting for the "money to come out of the claim" or anything of the kind. The mine and terms of conditional sale have been referred to. The prospective purchasers advanced \$2,500 to develop the lead, reserving the right to buy or not as they saw fit.

PALOMO.—We understand that the mine is paying \$12,000 per month regularly.

EL DORADO COUNTY.

HART.—*Placerville Democrat*, March 25th: This mine is said to be paying well whenever water can be obtained. The proprietor has had an offer of one hundred dollars per month for a lease of five years, payable monthly in advance, which he has not yet decided to accept.

GOOD.—We understand that parties are now here to commence work on the Harmon mine, and again start the mill.

DITCH.—Mr. Poett, of San Francisco, acting for English capitalists, has been in this section looking to the practicability of bringing in a large ditch, and the probability of such an enterprise being remunerative.

PROSPECTS ON THE GEORGETOWN DIVIDE.—The mining interests, both quartz and placer, are beginning to improve. The St. Lawrence, (Doran) mine, has been purchased by San Francisco capitalists, who took possession on the 18th, and are prospecting with vigor. They work six hands two at a time night and day, in eight hour "shifts." We are informed that these parties pay fifteen thousand dollars for this ledge, making one payment down and the balance in 90 days, if the claims suit them; if not, they forfeit the first payment and surrender the mine to its former owners. From present appearances it is not at all probable that this enterprise will prove a failure.

THE DEFIANCE Hydraulic Claim, on the Perkins Ranch, owned by parties from San Jose, is energetically worked. The owners have purchased Mr. Perkins' Ranch, and laid down between two and three thousand feet of iron pipe to convey water to their works.

INYO COUNTY.

CERRO GORDO.—*Independent*, March 18: Beaudry's works are shut down, for the purpose of adding a new galamadre. Belshaw's in full blast, as usual. Work resumed on the Buena Vista tunnel by the new owners, Belshaw & Beaudry, and is producing large quantities of galena. On the Belmont side, the mine is working a force of eighteen men, extracting twenty tons of silver ore per week, of the average worth of \$100 per ton on the dump. Work on the lower tunnel, now in 640 feet, has been suspended for the present, and they are examining the ledges already cut by it. The Wittkind tunnel is in 170 feet, and being driven ahead as fast as possible, but the rock is very hard, and costs \$54 per foot to cut it. The Crowning Glory is proving fine property for its new owners. Eighteen men are employed, who are steadily taking out large quantities of pay ore. Hahn has made a new strike—the Schiller, and is extracting considerable quantities of good ore. The Oceola tunnel is in 200 feet, but has not yet reached the ledge. The Omega starting into the hill southward from the San Lucas canyon, just over the divide, is in 780 feet, and driven at the rate of 20 feet per 24 hours.

SALE.—Mr. Brady, for the Owens Lake Silver-Lead Co., yesterday purchased of

Mr. Thomas Parker's attorney in this place the remaining 200 feet in the Front mine.

MARIPOSA COUNTY.

PURCHASE.—*Gazette*, March 24th: Mr. Peter Wiant has brought the McAlpine mine on Quartz Gulch, five miles from Coulterville, and has put a force at work to put the mine in working order. The mine was once famous as one of the richest in the county and has yielded a great amount of treasure. It is on the great mother lead.

NOT MUCH.—The damage done to the Washington mine, near Hornitos, by the caving two weeks since, was not as bad as reported.

RESUMED.—We learn that work was resumed on the Malvina mine last Monday and the French mill will soon be crushing the rock.

PAYS WELL.—Mr. J. Shimer has been working his mine near Coulterville all winter with good results. At present he has a vein of 2½ feet in thickness of good paying quality.

MONO COUNTY.

THE DIANA MINE.—*Reno Journal*, March 25th: The ore has been a puzzle to metallurgists, and the mine has paid but little more than expenses. Mr. Williams a few weeks since determined to give the Stetefeldt furnace a trial and accordingly mined out nine tons of ore and shipped the same to the Auburn Mills here for reduction, which was worked this week and yielded over \$750 per ton.

NEVADA COUNTY.

BLUE TENT.—*Gazette*, March 22d: All the mines are actively worked, and water since Monday has been abundant. Killam & Co. are using 750 inches through a five and a half inch nozzle, under a pressure of 230 feet. At the head of their claims their pipe is three feet in diameter. This leads into 22 inch pipe, and after running 500 feet, it is compressed into 16 inch pipe, and then forced through one of Craig's glohe nozzles.

YOU BET.—Same of 25th: We learn that the prospects for mining this season are brightening. There will be a good supply of water in a few days.

THE CORNISH MINE.—Within a few days rich pay had been struck in the Cornish mine, a mile and a half down Deer creek. The mine has been worked three years and has cleared above all expenses, \$30,000. Two shutes have been exhausted, and the owners had about given it up, when they struck the richest pay 500 feet from the second shute. The claim was purchased by the present owners in 1859. There is rich quartz enough in this shute to last six or seven years. There are 80 tons of quartz above ground, and the owners are taking it out at the rate of 10 tons per day.

THE RAIN FALL.—*Transcript*, March 22d: The last was, according to the gauge of the South Yuba Canal Co., 1.93. This gives a total for the season up to date, of 36.01 inches, against 46.32 inches to the same date last season.

Same of 25th says the demand for water is greater than all the ditches could convey if they were running full. At Scott's Flat also the miners want more than the companies can furnish. In many of the camps the miners alternate, some of the companies working in day time and others at night.

EUREKA MINE.—*Grass Valley Union*, 21st: The Eureka did not spread herself in the last two weeks. The mill lost half a day in that time, on account of repairs. Eleven and a half days' run gives \$22,000.

NUGGET.—Same of 28th: The Webster Co. had a clean up Saturday. A curious nugget, weighing an ounce and a half, picked up out of the sluice boxes, represents in shape the design on the Seal of the State of California. The Goddess of Liberty, with cap and staff, is sculptured in gold, by the hand of Nature. An imaginative eye can see outlines of the bear at the left hand of the Goddess. This specimen is to be saved from the melting pot.

PLACER COUNTY.

ENORMOUS YIELD.—*Stars and Stripes*, March 23d: Last week the St. Patrick Co., in Ophir District, made their first regular crushing since the last change of proprietors. One hundred and ninety-four tons of rock were crushed, yielding within a small fraction of sixty pounds of retorted gold, valued at about eleven thousand dollars. In addition to the above, the Co. sent below a lot of specimen rock—about half a ton—the value of which is variously estimated at from one thousand to twenty-five hundred dollars. Thus we have a test, by the crushing of nearly two hundred tons of rock, just as it came out—good, bad and indifferent—that shows an average of about sixty-seven and a half dollars per ton. Considering that the bottom of the shaft is

eighty feet below the water line, and that the rock at that depth is the best they have struck, the above must establish the reputation of the St. Patrick.

MINE SOLD.—*Herald* 25th: Baptist Stinger has sold his mine 1,000 feet on the Shipley ledge, for \$6,000 in gold coin. The shaft is down only 70 feet, but it has yielded richly and is a five foot ledge.

PLUMAS COUNTY.

PIPING.—*Quincy National*, March 18th: Nearly all the hydraulic claims in the county are now running, and the water season bids fair to be a good one.

CAVED.—The tunnel of the Deadwood Co., at Ellzabethtown, caved in one night last week. They have about repaired damages. They intend to run through to the back before commencing to "breast out." A large amount of gold will be taken from this claim during the summer.

RICH BAR.—Cor. of same: McElroy & Beatty are running a prospecting tunnel, opposite Long Bar.... Rice & McCorkle, at Oak Flat Ravine, have commenced piping. They will take out "big money." The Bunker Hill Co., have commenced with good prospects.... The Taylor Hill Co. between Smith's Hill and Bunker Hill, have a large head of water, and plenty of ground which prospects "big." They have just got their pipes to running.... Keep & Co., on Indian Hill, have commenced throwing water.... A new company has commenced ground sluicing in Kellogg's Ravine. The ground is deep, and has never been prospected.... McInness & Co., at French Ravine, are making good wages. Several large pieces have been taken from this claim, one weighing over sixty ounces.

SAN BERNARDINO COUNTY.

NEW DISCOVERY.—*Guardian*, 18th: Mr. James Grant, just returned from a prospect in our mountains, 35 miles southeast of Lane's Crossing, discovered seven ledges of rich silver, copper and galena, which he has sent to Los Angeles for assay.

SIERRA COUNTY.

SIERRA VALLEY.—Cor. of *Messenger*, March 25th: The miners at Antelope are steadily digging away at their ledges. Parties at Gold Hill interested by specimens sent them, offer to put up furnaces, etc., this spring for an interest in the mines.

ITEMS.—*Democrat*, March 23d: The Keystone Mill is again in full operation. Excellent rock is being taken from the mine.... The Reis Co. is putting on more men, and all the miners around Sierra City are employed.... We have been shown by Mr. Webe some rock from the ledge owned by Webe, Barton & Co., which is immensely rich.

WATER.—For the past week it has rained most of the time. The indications are that the miners have a good season ahead. The water is beginning to start in the ditches in the northern camps.

SISKIYOU COUNTY.

ITEMS.—*Yreka Union*, March 22d: Miners are busy at work now in all the different localities, generally in ground sluicing. Water is tolerably plenty for the present.... We learn that the miners on Dog Creek are doing well.... We understand that the quartz mill of Moses & Co., on Humboldt, has been started.

TRINITY COUNTY.

THE PROSPECT.—*Journal*, March 18th: There has been storm enough to insure a fair yield from the mines. We predict that more money will be taken out this season, than ever before with the same amount of labor and water. Our reasons are, that nearly all the claims are productive—the poorer ones being ones being unworked. Next, the miners have had abundance of time to rig. Further, the boys are generally hard up, and determined to make everything count. Gold dust is coming in freely already.

DOUGLAS CITY.—Charley Tourret cleaned up recently, after sixteen days' run, twenty ounces.

LOWER TRINITY.—Job Hedges & Co. have opened a claim abreast of Little Prairie, and found a good prospect and eighty feet of gravel. They have dug a ditch to their ground.

INDIAN CREEK.—Sillcox is reported to be in excellent spirits over his late clean-up, and will push ahead with the work on his quartz ledge. He is satisfied that he has a "big thing."

STRUCK IT.—Marcus Bennett & Co. have struck good diggings on a bench above Poker bar, and have a ditch from Trinity gulch on to the diggings.

MINERSVILLE miners were all at work, at last accounts, with a full supply of water and excellent prospects.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—The Elko *Independent*

of March 25th, gives an extract from a private letter:—"One of the richest strikes has been made here. Mr. Harris is the discoverer of the ledge, in which is contained a stratum of pure horn silver an inch and a half in thickness. The ledge is next to the Estelle. The Estelle has been purchased for fear that it might run into the new discovery. The name of the ledge is the Independent."

ELY DISTRICT.

A GOOD MINE.—*Record*, March 23d:—Charley Noakes and others, on the Alexander, a recent location, have a shaft down 60 feet and 30 tons on the dump, which will work three to four hundred dollars to the ton. They have a vein of ore two feet thick and widening. One assay went up to \$1,000 per ton.

FINE BARS.—At Cahill's office on Sunday, we saw sixteen silver bars belonging to Courtney & Co., the product of a portion of the ore from the Creole contract. It was all over .975 fine, and was worked at Ely & Raymond's five-stamp mill in the Valley. The bullion is valued at nearly \$30,000.

BULLION.—Since March 16th, one week, the shipments by Wells, Fargo & Co., from Pioche East, amount to \$42,222.57; West, \$929.86. Also, from the Meadow Valley Co., via Salt Lake, \$11,951.62; and by P. H. Feleenthal, \$2,078.

The Salt Lake *Herald* reports the receipts from Pioche, by W. F. & Co., for February, as 159 bars, weighing 16,989 pounds, or over eight tons, of \$226,776 coin value.

EUREKA DISTRICT.

WHAT IS DOING.—*Sentinel*, March 25th: The Richmond has never looked so well. Explorations prove that an immense body of smelting ore has been reached, and with eight men 20 tons of ore per day can be extracted, while neither the bottom nor sides have yet been reached. The late work on the Empire has discovered a body of ore larger and of high grade. The Hambrug is worked by six men, and they are raising 12 tons per day. The Marcelina deep shaft is in splendid ore. The Adams and Faren is producing large quantities of ore, and the work is being pushed with all hands. The Otho, now under bond, is producing fine ore. The Saratoga is improving. The Kentucky Boy and the Mountain Chief are producing more ore than can be melted in the furnaces of the Buttercup Co. The Home Ticket and the Dunderburg are showing fine ore, and the first is furnishing more than can be melted in the Tilton furnace.

THE JACKSON MINE.—This gave clear for January \$18,000, and nearly as much for February. But having been worked for months merely to get out ore, explorations were neglected, and it is now reported played out. But when the furnaces are repaired and work again commences, Jackson ore will make Jackson bullion as of old.

MILLS WANTED.—The latest explorations in the district show that there is a large proportion of the ores which are milling, rather than smelting, ores; and that there is now on the dumps within five miles, ore enough to run a 20-stamp mill a year. But the transportation to any mill within reach would cost \$10 per ton.

HUMBOLDT.

ITEMS.—*Silver State*, March 25th: The Butte mill at Rye Patch, is nearly ready for starting up again. Five stamps have been added, making ten. The Akin furnace has also undergone improvements.

...The amount of bullion shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$6,243.54.... The Batavia & Pacific Co., of Relief District, are to put up a mill soon; a large amount of ore on the dump is ready for it.... In the same district, Hadley & Walters have a 3½-foot ledge which tests \$96 per ton.

OREANA.—We understand that the Orea Smelting Works are shortly to be put in operation again. A joint stock company is being organized, with Almarin B. Paul as Superintendent of works and mines to be consolidated.

ARIZONA MINE.—Unionville Cor. of *Enterprise*, March 10th: The two mills can crush and amalgamate 400 tons a day. Average assay of ore milled, \$75 per ton. The first quality, which assays \$550, is shipped to Europe for reduction. The monthly dividend is \$30,000. A force is constantly prospecting ahead, and there is now, by calculation, sufficient ore in sight to supply 200 tons a day for three years.

REESE RIVER.

ORGANIZED.—*Reveille*, March 22d: The "Citizens' Mill Company" was organized at a meeting last night. The steps for incorporation will be taken to-day. Capital stock, \$50,000, in \$25 shares, unassessable. A force of men was dispatched to Ione this

morning to begin the work of taking down the mill.

PLENTY OF RICH ORE.—Same of 23d: Old Lander Hill is looking better than for two years. The Manhattan Co.'s mines are in better trim than ever. In the Oregon, at depth of 230 feet, a drift 130 feet long shows an unbroken face of concentrated ore. More or less rich ore is coming out of all the veins on the hill. We think Austin will be a live place from this on.

WAKING UP.—Same of 24th: The hills to the west and south of Austin, which for years have been desolation itself, are alive with men looking up old and abandoned locations, and posting fresh notices on the same. Recorder Craycroft has had more work to do within the last two weeks than in the past two years. Only well-defined ledges, known to pay in the fifties, are relocated. Now lot people work them or quit. The Citizens' is not a speculative concern. They will work ores cheap and well; but they won't buy or lease mines from people too lazy to work them themselves.

WASHOE.
CHOLLAR-POTOSI.—*Enterprise*, March, 26th: Daily yield increased to over 300 tons, principally from the Belvidere section. The floors promise to extend wider than those already worked. The yield of bullion is very large.

SAVAGE.—The ore product is 80 tons per day, from the old and new mines. Several levels are being reopened. It is expected that the south drift on the lowest level will connect with the works of the Hale and Norcross within two days.

HALE AND NORCROSS.—The ore-breasts between the seventh and eighth levels are yielding a large supply of excellent ore. We understand that a development of some importance has been made in this mine during the past two days; but we have not learned its locality. The daily product is 200 tons of ore.

BELCHER.—The quartz in the winze below the track floor of the 420-foot level shows improvement. The west drift shows more favorable indications, and the prospects of the mine generally are excellent.

YELLOW JACKET.—Daily yield 190 tons. The ore-breasts all yield well, and the new body being developed at the north portion of the drift at the 1,000-foot level will soon be cross-cut into.

CROWN POINT.—The huge ore body shows better and more extensive as developed. It is the finest body of ore of its size ever discovered in that section of the Comstock.

CALEDONIA.—The 200 and 300-foot levels yield 120 tons per day, keeping the Pinite and Sapphire mills running to their full capacity.

GOULD AND CURRY.—A vast amount of prospecting is being done, and we hear rumors of good ore being found.

IMPERIAL.—The cross-cut from the north drift at the 300-foot level into the Holmes ground, shows only quartz and porphyry but the indications are favorable.

VIRGINIA CONSOLIDATED.—Still cross-cutting west.

DANEY.—Drift in from the shaft 133 feet last evening. Rock favorable, allowing of better progress. Everything works finely.

LADY BRYAN.—We understand that the present owners of the Lady Bryan mine propose starting both mine and mill into full working operation in a few days. The whole concern is now in the hands of good substantial men, who own everything and do not owe a dollar on account of it. There is plenty of ore in the mine that will pay from \$17 to \$30 per ton.

WHITE PINE.

REVIEW.—*News*, March 18th: Live miners have been following up the narrowed strata in Chloride Flat mines pronounced "played out," and have in nearly every instance discovered large bodies of ore. The English Company steadily pushes on its works. The tramway will be finished by April 1st. The wire rope from the Ward Beecher mine to the Stanford mill has been put in place.

Same of 25th says that many claims idle during the winter, have been started up. The croakers have decamped, and the workers have come. The bowels of Treasure Hill are alive with men. It is now demonstrated that a true vein of ore extends from the Aurora South to the Original Hidden Treasure. The developments already made are sufficient to warrant the permanency of our camp, and to insure success to such companies as are working for it legitimately. A short time now will tell the story.

ITEMS.—South Aurora takes out 150 tons ore per day. Ninety men are at work in the mine. Silver Wave is in better shape than ever before. Thirty men are at work.

The pulp assay of a lot of ore worked recently was \$95 per ton. Three miners have struck a regular vein two to three feet wide. The ore struck in the Bourbon will mill \$100 per ton. The ore breast on the Mammoth is now 12 feet high and 40 feet long. The ore assays \$270, and shows chloride of silver. Work on the Burning Moscow and Sunbeam was suspended during the suit just decided in favor of the Sunbeam. Big Smoky furnace has never had to shut down for repairs yet. There is no burn out to it. There is 700 tons now broken in the Ward Beecher mine. In Genesee, a "horse" divides two vertical veins of ore, 3 and 5 feet in thickness. General Lee reverts to the owners April 1st. The lessees are hurrying up to set out all they can of the good ore on hand.

Arizona.

BRADSHAW.—The *Miner* of March 11th, says two-thirds of the Prescott people have gone daft over the rich ore from Bradshaw. A number of sales have been made. Fifty feet in the Tiger sold for \$2,000 cash down. Gid. Cornell offered Wash. French \$10,000 cash for his 300 feet, which was refused.

Same of 18th, says that the news daily received confirms all that has been said of the richness of these mines. Major Veil, just returned, says there are 150 men there at work with their pockets filled with specimens, showing chloride and native silver. The Tiger Co. were shipping ore from their shaft. The Del Pasco (gold), had a shaft down 66 feet, with richer ore than ever. Men were constantly arriving from points south, prepared for prospecting. More feet have been sold, but most owners prefer to hold on.

OTHER DISTRICTS.—Big Bug mill cleaned up the other day 40 pounds of gold worth \$16 per ounce. Lynx Creek has an abundance of water. The Vulture first extension have out rich ore, and will soon commence crushing.

Colorado.

NEVADA DISTRICT.—*Herald*, March 18th: The Mount Desert lode is yielding large quantities of remarkably rich ore. Hughes & Bird are working it under lease. The shaft is down 150 feet. The crevice has maintained a width of four to six feet of ore yielding per cord in stamp mill eight to sixteen ounces of gold, the last giving \$200.

SOUTH PARK.—Cor. of *Register*, 22d: At Mosquito, Hostetter and Co. are at work on the War Eagle lode. They have a vein of ore three to eight feet. This assays as high as two thousand dollars per cord in gold and silver. They are running it day and night, with five men.

REPUBLICAN MOUNTAIN.—*Miner*, 23d: The Silver Plume and Snowdrift are either of them equal in productive capacity to the Cariboo lode. These two mines can furnish 10 tons of ore per day and can yield, with 80 per cent. of the assay value paid, \$3,000 in silver bullion each twenty-four hours. They are well opened, and but very little of the ground in the stopes has been touched.

ITEMS.—The smoke is ascending from the Arey furnace. The Stewart Co. last week shipped silver bullion to the amount of \$5,282.95, coin, the product of six days' run of the mill. A rich strike has been made in the Gage lode, Republican mountain. The discovery shaft is only 14 feet deep. The Indigo lode, on Leavenworth mountain, is being worked on a lease. A lot of ore weighing half a ton, was sold to Stewart last week for \$516.38 currency.

Montana.

PILGRIM BAR.—*New North West*, March 17th: Operations begin on the Rock Creek Ditch, April 1st. The ditch will be flowed not later than April 20th, unless an unusually cold spell occurs. Last year water was not turned in until May 9th, and then only 400 inches. This year it will start with full 1,500 inches. All indications are in favor of the best mining season there has yet been at Pilgrim Bar.

Oregon.

The Jacksonville *Sentinel* of March 18th says the late rain will bring out over \$100,000 worth of gold from the mines in that county.

The *Oregonian* has the following:—Capt. J. H. Fisk showed us letters from Baker City, dated Feb. 19th and 22d, which give accounts of very rich discoveries of silver leads on Burnt river, between Miller's Station and Old's Ferry. There is great excitement at Baker City, and many are going up to look for feet. One of the parties interested had melted three ounces of rock, from which was obtained six cents worth of silver.

San Francisco Retail Market Rates.

MISCELLANEOUS.	
Butter, Cal. fr.	30 @ 40
Pickled, Cal. fr.	20 @ 40
Oregon, B.	25 @ 30
Honey, B.	20 @ 25
Cheese, B.	20 @ 25
Eggs, per doz.	35 @ 40
Lard, B.	15 @ 20
Straw, B.	10 @ 15
Brown, do.	10 @ 15
Beet, do.	10 @ 15
Sugar, Map. B.	37 @ 35

PRODUCE, ETC.	
Codfish, dry	6 @ 10
Flour, 24 lbs.	5 @ 10
Syrup, do.	5 @ 10
Corn Meal, 100 lbs.	2 @ 15
Wheat, 100 lbs.	2 @ 15
Oats, 100 lbs.	2 @ 15

FRUITS, VEGETABLES, ETC.	
Pine Apples, 1.50	@ 20
Bananas, 1.00	@ 20
Cal. Walnuts, 1.00	@ 20
Cranberries, 1.00	@ 20
Apples, No. 1, lb.	4 @ 5
Pears, table, lb.	12 @ 15
Oranges, 10 doz.	5 @ 10
Lemons, 10 doz.	7 @ 10
Figs, dried, lb.	15 @ 20
Asparagus, wh.	12 @ 15
Green, do.	10 @ 15
Artichokes, doz.	75 @ 100
Brussels sprouts, 12	@ 15
Beets, 10 doz.	20 @ 25
Potatoes, 100	@ 25
Potatoes, sweet,	@ 25
Potatoes, new,	@ 25
Tomatoes, 100	@ 25
Broccoli, 10 doz.	50 @ 20
Carrot, 10 doz.	2 @ 10
Cabbage, 10 doz.	3 @ 10
Carrot, 10 doz.	2 @ 10
Celery, 10 doz.	75 @ 100
Cress, 10 doz.	20 @ 25
Dried Horis, 10	@ 25

POULTRY, OAME, MEATS, ETC.	
Chickens, apiece	75 @ 100
Turkeys, 10	@ 20
Ducks, wild, 10	@ 20
Tame, do.	1.50 @ 2.00
Teal, 10 doz.	3 @ 10
Geese, wild, each	37 @ 50
Tame, pair, 3.50	@ 4.00
Fron Chicago.	
Hens, each	75 @ 100
Snipe, 10 doz.	1.25 @ 1.50
English, do.	2.50 @ 3.00
Yonon, 10 doz.	2 @ 10
Quails, 10 doz.	2 @ 10
Pigeons, com. doz.	30 @ 50
Wild, do.	1.50 @ 2.00
Pheas, each	4 @ 10
Rabbits, tame.	50 @ 100
Wild, do.	2 @ 10
Squirrel, pair.	25 @ 30
Beef, 100 lbs.	12 @ 15
Sirloin mid rib	18 @ 20
Corned, 100 lbs.	10 @ 12
Smoked, 100	@ 15
Pork, 100 lbs.	12 @ 15
Chops, do.	12 @ 15
Veal, 100 lbs.	15 @ 20
Cutlet, do.	15 @ 20
Mutton chops,	12 @ 15
Leg, 100 lbs.	12 @ 15
Lamb, 100 lbs.	12 @ 15
Tongues, beef, ea	7 @ 15

* Per lb. + Per dozen. * Per gallon.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.
Alpha Cons., G. H. Mar. 1, \$1.	April 5—April 24	
Belcher, G. H. Feb. 15, \$1.	Mar. 22—April 10	
Confidence, G. H. Feb. 5, \$3.	Mar. 13—Mar. 31	
Cons. Virginia, Feb. 27, \$1.	April 3—April 25	
Daney, Lyon Co., Nev., \$2.	Apr. 29—May 18	
Eagle Quicksilver, S. Bar. Co., Feb. 8, \$20.	Apr. 10—Apr. 16	
Gold & Curry, Va. City, Feb. 25, \$12.50.	Mar. 30—Apr. 20	
Imperial, G. H. Mar. 25, \$15.	Apr. 27—May 15	
Mahogany, Owyhee Co., I. T. Mar. 23, \$2.	May 1—May 8	
Mammoth, W. P. Jan. 31, 10c.	Mar. 10—Mar. 31	
Marble Falls, Nye Co., Nev., Mar. 8, \$1.	Apr. 8—Apr. 24	
Maxwell, Amador Co., Dec. 21, \$2.	Mar. 27—May 18	
Mountain City, Nev., Feb. 18, 25c.	Mar. 27—Apr. 17	
Nevada State, H. B. Co., Nev., \$1.	Apr. 8—Apr. 24	
North American Con. M. Co., Feb. 15, 5c.	Mar. 29—Apr. 27	
Ophir, Va. City, Mar. 25, \$3.	Apr. 27—May 18	
Orig. Hid. Treas., W. P., Jan. 31, \$1.	Mar. 6—Mar. 31	
Oriental, Sierra Co., Mar. 21, \$1.	Apr. 24—May 14	
Overman, G. H., Feb. 28, \$2.50.	April 8—April 28	
Rogers, Storey Co., Nev., Feb. 13, \$1.25.	Mar. 20—April 17	
Silver Sprout, Inyo Co., March 15, \$5.25.	May 1—May 15	
See-Belcher, H. B. Co., Nev., \$1.	Apr. 25—May 16	
Taylor, El Norado Co., Jan. 31, 50c.	Mar. 6—Mar. 27	
Tallulah, Nevada, Mar. 14, \$1.	Apr. 25—May 23	
Union, Sierra Co., \$1.	April 6—	

MEETINGS TO BE HELD.	
Jackson	Annual Meeting, March 27
Phoenix	Annual Meeting, April 3

LATEST DIVIDENDS—(Within Three Months).	
Black Diamond, 1/2 per cent.	Payable Mar. 5
Chollar Potosi, \$5.	Payable March 9
Chollar Potosi, \$5.	Payable March 15
Eureka, div., \$2.	Payable Feb. 7
Eureka Cons., \$1.	Payable Feb. 20
Gold Charter, div., \$7.	Payable March 10
Hale & Norcross, div., \$5.	Payable March 10
Meadow Valley, 1 per cent.	Payable Feb. 9
North Star, \$3.	Payable March 5
Sierra Nevada, div., \$1.	Payable Jan. 15
Yellow Jacket, \$2.	Payable March 01

* Advertised in this journal

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]
SAN FRANCISCO, Thursday, March 30.

SOLE LEATHER.—The demand is still equal to the supply, and prices firm.

City Tanned	25 @ 30
Santa Cruz	25 @ 30
Country	25 @ 30

CALF AND KIP SKINS.—The price of the war has made no difference in the price of French stock as yet, and probably will not. Domestic skins rule the same as heretofore.

Best French Calf Skins, 1/2 doz. 75 @ 100 57

Common French Calf Skins, 1/2 doz. 35 @ 50 75 00

French Kips, 1/2 lb. 1 00 @ 1 00

California Kip, 1/2 doz. 60 @ 70 00

California Kip, 1/2 doz. 1 00 @ 1 00

Eastern Wheel Stuffed Calf, 1/2 lb. 80 @ 1 25

Eastern Bench Stuffed Calf, 1/2 lb. 1 10 @ 1 25

Eastern Calf for Backs, per lb. 1 15 @ 1 25

Sheep Roms for topping, all colors, 1/2 doz 8 50 @ 13 00

Sheep Roms for Hinges, 1/2 doz. 5 50 @ 10 00

California Russet Stuffed Linings. 1 75 @ 3 00

HARNESS LEATHER, 1/2 lb. 30 @ 35 00

Fair Bridle, 1/2 lb. 30 @ 35 00

Skirting, 1/2 side. 4 50 @ 4 50

Wool Leather, 1/2 doz. 30 00 @ 50 40

Buff Leather, 1/2 foot. 25 @ 50 00

San Francisco Metal Market.

PRICES FOR INVOICES	
Shipping prices rule from ten to fifteen per cent. higher than the following quotations.	
IRON.—Duty, 1/2 ton: Railroad, 6c @ 100 lbs: Bar, 10 1/4 @ 11: Sheet, polished, 3c @ 100 lbs: 10 1/4 @ 11: Plate, 1 1/2 @ 11: Pipe, 1 1/2 @ 11: Galvanized, 2 1/2 @ 11: Scotch and English Pig Iron, 1/2 ton. \$34 @ 35 00	
White Pig, 1/2 ton. 32 @ 33 00	
Refined Bar, bad assortment, 1/2 B. 63 @ 64 00	
Refined Bar, good assortment, 1/2 B. 64 @ 65 00	
Boiler, No. 1 to 4. 64 @ 65 00	
Plate, No. 5 to 9. 64 @ 65 00	
Sheet, No. 10 to 13. 64 @ 65 00	
Sheet, No. 14 to 20. 64 @ 65 00	
Sheet, No. 21 to 27. 64 @ 65 00	
COPPER.—Duty: Sheathing, 3 1/2 @ 4 B: Pig and Bar, 2 1/2 @ 3 B.	
Sheathing, 1/2 B. 21 @ 22 00	
Sheathing, Yellow. 20 @ 21 00	
Sheathing, Old Yellow. 10 @ 11 00	
Composition Nails. 21 @ 22 00	
Composition Bolts. 21 @ 22 00	

TIN PLATES.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, 1X @ box. 12 00 @ 12 00	
Plates, 1 1/2 Charcoal. 10 00 @ 10 50	
Roofing Plates, 1 1/2. 10 00 @ 10 50	
Banca Tin, Slabs, 1/2 B. 42 @ 42 00	
STEEL.—English Cast Steel, 1/2 B. 15 @ 15 00	
Quenching, 1/2 B. 15 @ 15 00	
LEAD.—Pig, 1/2 B. 66 @ 67 00	
Sheet. 68 @ 69 00	
Pipe. 68 @ 69 00	
Bar. 68 @ 69 00	
ZINC.—Sheets, 1/2 B. 10 1/2 @ 11 00	
BOLAX. 25 @ 25 00	

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, March 11, 1871.

IRON.	
Pig, Scotch, No 1 (cash), per ton. \$31 00 @ \$33 00	
Pig, American, No. 1 (cash). 32 00 @ 35 00	
Pig, American, No. 2. 30 00 @ 33 00	
Swedish, ordinary sizes. 110 00 @ 120 00	
Ordinary. 75 00 @ 80 00	
Refracted. 75 00 @ 80 00	
Rods. 80 00 @ 110 00	
Horse-shoe. 95 00 @ 100 00	
Hoop. 100 00 @ 140 00	
Scroll. 97 50 @ 130 00	
Flat-rolls, per lb. 6 1/2 @ 6 1/2	
Spring. 7 1/2 @ 7 1/2	
Tire. 7 1/2 @ 8 00	

STEEL.	
Sarn, best cast, warranted, per lb. 18 @ 19 1/2	
Sheet, best cast. 18 @ 19 1/2	
Sheet, second quality. 15 1/2 @ 16 1/2	
Sheet, third quality. 13 1/2 @ 14 1/2	
Saw-plates, circular. 23 @ 24 00	
Double-shear, warranted. 18 @ 19 00	
Single-shear. 18 @ 19 00	
Knottage & Co. (cast bars). 15 1/2 @ 16 1/2	
Machinery, round. 11 @ 12 00	
German, best. 11 @ 12 00	
German, good. 10 @ 11 00	
German, eagle. 9 @ 10 00	
Slister, warranted. 14 @ 15 00	
Slister, common. 10 @ 11 00	
Jossep & Sons', common. 17 @ 18 00	
Double-reinforced. 24 @ 25 00	
Stone-ax shapes. 25 1/2 @ 26 1/2	

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

PACIFIC RAMIE Co.—March 16th. Trustees: M. J. McDonald, J. French and W. P. Lockhart.

MILLS TREADLE MANUFACTURING Co.—March 18th. Capital stock, \$500,000, in 1,000 shares. Trustees: F. E. Mills, J. De Forrest, H. N. Tilden, C. Rowell and W. P. Humphreys.

CALIFORNIA STOCK AND POULTRY ASSOCIATION. March 28th. Capital stock, \$10,000, in 1,000 shares. Trustees: T. H. Selby, S. Hubbard, J. Lindley, W. H. L. Barnes and T. E. Finley.

The following have been recorded in the Secretary of State's office, Sacramento.

MINNESOTA G. & S. M. Co., Owyhee county, Idaho Territory. Capital stock, \$2,000,000, in 20,000 shares. Trustees: W. M. Lent, G. S. Dodge, G. D. Roberts, G. Hearst and J. W. Gashwiler.

SHEBA S. M. Co., Star District, Nevada.—March 21st. Capital stock, \$1,000,000, in 10,000 shares. Trustees: J. C. Fall, R. E. Brewster and G. F

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MARCH 14TH.

POTATO MASHER.—Charles Adolph Frederick, San Francisco, Cal.

MEDICAL COMPOUND FOR TREATING BRONCHIAL AND LUNG DISEASES.—Shelby Wadon Helm, Bachelor Valley, assignor to Britton Capell and Wm. J. Rose, Little Lake Valley, Cal.

BOOT-JACK.—Joseph Rouard, San Francisco, Cal.

MACHINE FOR BLOCKING RIBBONS, ETC.—George Vincent, Stockton, Cal.

MOLDING MACHINE.—James H. Culver, San Francisco, Cal.

HAIR RESTORATIVE.—William P. Thomas and Joseph F. Boardman, Elko, Nevada.

SAW.—William Kidd, Duncan's Mills, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

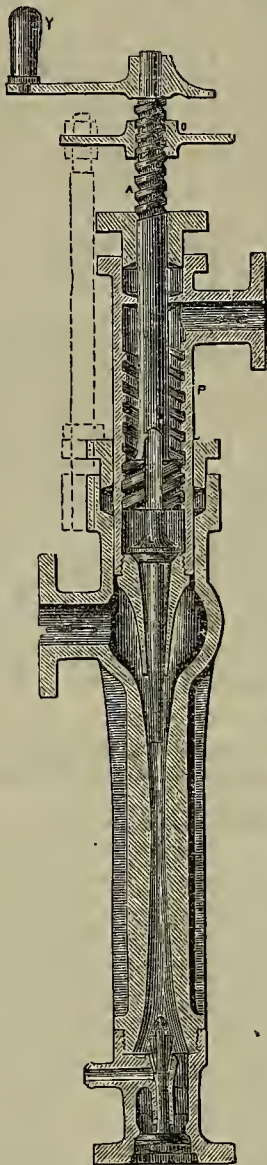
PEN-HOLDER.—J. Roth, Virginia City, Nevada. Although the pen, as acknowledged by the general public, is mightier than the sword, notwithstanding its inferior size, yet it has not been subject to as much attention with regard to the facility of carrying it on the person. Mr. Roth proposes, by his invention, to enable every one to have this powerful weapon always ready to the hand. For this purpose, he simply modifies its construction, obviating the necessity of having a more or less cumbersome case. He so constructs the metallic pen-clasp that it can be hinged to the end of the handle or stock of the pen, which, consequently, can be shut down upon the handle. A metallic ferrule is arranged to slide up and down along the handle, and serves to stay the pen and clasp it firmly in place when open for use, as well as to slip over and protect its point when it is closed down on its handle. The device being so handy, it is feared that editorial combats will become very frequent.

WHEEL FOR WHEEL-BARROWS.—G. Withington, Ione City, Cal. Perhaps the Ionians may be able to use this device in carrying through their railroad project. It relates more particularly, however, to wheel-barrow and truck wheels, and the wheels of toy wagons. The spokes consist of metallic bars or rods, bent so that each half will serve as a bracing spoke. The bend of the rod is flattened so as to fit against the inner face of the tire, to which it is secured by a rivet, screw or other fastening device. The end next to the hub or axle is provided with screw-threads upon which a nut is screwed, and the end of the rod or spoke enters a hole in the hub or axle directly under the nut. By screwing this nut up or down on the rod, the spoke can be tightened or loosened as desired, the nut bearing against the hub. In this way a strong and substantial wheel can be made at a slight expense.

APPARATUS FOR SAVING QUICKSILVER.—O. H. Young and J. Vaughn, Wisconsin Hill, Cal. The invention is designed to obviate the usual loss of quicksilver and amalgam in the tailings after amalgamation—an important object. The tailings are led into a box of suitable size, a large part of the floor of which is covered with plates provided with diamond or other recesses or cavities on their upper surfaces. A shower of water is introduced through a perforated plate which extends across the passage way, and is elevated a little above the floor, thus evenly distributing the tailings over the bottom plates. The heavy quicksilver or amalgam is retained in the cavities, while the gangue is washed away. Any quicksilver which may escape the cavities, is caught in a transverse trough at the lower end of the box. A series of small movable gates diverts or guides the stream as desired. A swinging gate, hinged to the middle of the box, diverts the tailings to either side, when it is desired to clean up.

Gresham's Improved Injector for Steam Boilers.

The principal feature of this device, invented by James Gresham, of Manchester, England, consists in providing the central spindle of the injector with two screw-threads, one of which screws through a fixed nut, and the other into a female screw-thread formed in the ram or part of the injector to which the steam nozzle is attached, so that by turning the central spindle a double adjustment is obtained,



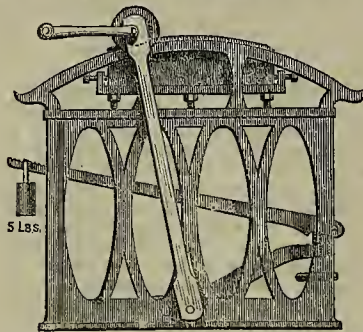
whereby the steam nozzle will be made to move in one direction to shut or reduce the water-passage, and the cone spindle at the same time made to move in the opposite direction to open or enlarge the steam passage, or vice versa. This enables a most perfect and expeditious adjustment of the water and steam spaces relatively to each other, to be effected by the turning of a single handle with less than the usual movement of the ram, and the play of the flexible joint, which unites the ram with the pipe through which it receives steam, is diminished.

The accompanying engraving, taken from the *American Artisan*, represents a central longitudinal section of the improved injector. P is the ram carrying the steam nozzle, fitted to work into and out from the body of the injector through a stuffing-box. The cone-spindle, A, which works through a stuffing-box in the outer end of the ram, is represented as having formed upon it two screw-threads, one of which fits a screw-thread in the ram, and the other fits a fixed nut, O, which is attached to the body of the injector by columns, one of which is shown in dotted outline; notches being cut in the flanges of the ram to fit the said columns, which are thereby made to prevent the ram from turning when the screw is rotated. The interior screw-thread of the spindle has one or more notches cut longitudinally through it for the passage of the steam. This screw is of greater pitch than the exterior screw, otherwise the ram would not be operated by turning the spindle.

Autographic Printing Press.

The annexed engraving represents a new printing press, designed to replace the lithographic press, and claimed to be adapted to common as well as fine work. It consists of a wood (or iron) frame, a weight of five pounds acting on a combination of two levers, two connecting rods, a printing cylinder, and a curved stone.

Replacing the old flat stone with the curved one, it is claimed, enables the finest work to be done by unskilled attendants, and obviates the old difficulty arising from the liability of the stones to break. The reasons assigned for this last are, that the ordinary presses give an unyielding pressure. The scraper must pass, or the stone



be broken. With the new press, the pieces are not so rigid, all the parts are movable and the levers, rising and falling, adapt themselves to irregularities in the stone, although the pressure remains constant in all points.

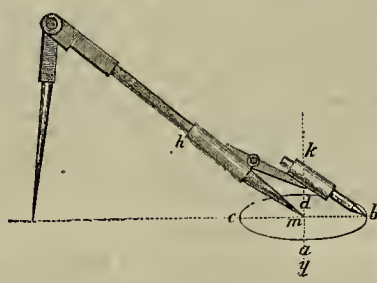
The absence of a tympan results in a saving of seven out of the eight motions required in the old style press, and it is claimed that a boy can easily take off with it one hundred and fifty impressions per hour. All trouble as to the regulation of the pressure on the stone is obviated. There is nothing to do except to move the weight of the first lever to a point which will give the required pressure.

The press weighs only a fifth as much as a corresponding old-style press, can be run by hand or steam power, may be shipped in condition ready for immediate use, is simple and durable, and is claimed to be particularly adapted for office use by companies and professional and business men generally. For further information address the patentee, C. Maurice, 160 William street, New York city.

A New Ellipsograph.

The compass for drawing ellipses, illustrated in the accompanying cut, from *La Propagation Industrielle*, is a German invention. Its operation is based upon the truth, that by cutting a cylinder in an oblique plane, the edges of the cut surface will form an ellipse.

The two arms, properly so called, of the compass remain fixed with their points on a line, (dotted here) the instrument being



held in a vertical plane. A sleeve, h, to which is jointed a third arm, k, is capable both of sliding upon the adjacent arm of the compass and of turning around upon the same. This supplemental arm, k, carries the pencil or tracing point, b. In turning the sleeve, the point, b, describes a circle equal to that of the circumference of a cylinder having for its axis the longer arm of the compass. While this is being done, care is taken to allow the sleeve to slide upon the arm to which it is attached

to an extent sufficient to enable the point to be kept constantly in contact with the paper upon which the ellipse is to be marked.

In order to use the instrument, the fixed points of its two arms are placed upon the (dotted) line, corresponding to the longer axis of the desired ellipse, and the point, b, is placed in the line of the shorter axis and at a distance from the point, d, of the longer arm equal to the length of the shorter radius, the angles of the two arms being adjusted to permit the point, b, to pass from one position to the other, whereupon the ellipse may be drawn in the manner just above described.

State Prisons.

We have received the fifth annual report of the California Prison Association, an organization which is doing most important service in working out one branch of the complicated social problem, and in encouraging by word and deed the improvement, moral and intellectual, of the convict. The report by James Woodworth of a visiting tour to prisons in the East, is interesting and instructive. Regarding reforms at home, he speaks as follows on one important point—a point in regard to which we commit in our State a huge and wide-spread fault:

"We can expect but little in the direction of the prison reform until we can have properly qualified and permanently appointed officers to inaugurate and carry out the measures of reform. And these we cannot possibly have until there is accomplished that Herculean task, so like the cleansing of the Augean stables,—the removal of our prison management entirely from the sphere of party politics. Until the unholy alliance between the two is broken up, no real and permanent progress can be made, but our efforts at reform will be much like the poultices, and gruel, and catnip tea, with which we ply a sick man, and try to relieve his sufferings, when nothing but a surgical operation can cure him of his disease and restore him to health. Of the magnitude of this evil, even in a financial point of view, very few are at all aware. I have before referred to the Albany Penitentiary and the Sing Sing Prison, both in the same State, to show the difference between the operations in this respect of the two; the former realizing a net gain to the public treasury of \$10,000 annually, while the latter costs the State more than \$300,000 a year.

I will say further, in this connection, that in a conversation which I had with an old prison officer, who is a close calculator and knows something by experience of such matters, he told me that if he could be placed in full and permanent charge of the Sing Sing Prison, with the appointment of his subordinates and the letting of the contracts in his own hands, he would be willing to give good and sufficient bonds for the fulfillment of an obligation to make the prison yield a revenue to the State of \$25,000 a year! and as more than that sum is realized from his own prison, with only half the number of convicts that there are at Sing Sing, there is reason to believe that he would be able to do all that he thinks he could. How suggestive is this to us, who are carrying, in our State Prison, a burden that costs us little if any less than \$50,000 every year. And yet this is the least of the evils of our prison system."

The *Alta California* appeared this week in a new and neat dress, which gives the paper an improved appearance. The *Alta* is in certain respects, especially in the arrangement of its matter, excelled by no journal. One always knows where to look in its columns for any desired information.

We received, last week, a pamphlet entitled "Information concerning the Terminus of the Railroad System of the Pacific Coast," issued by the Oakland Transcript. The pamphlet contains much of interest concerning the railroads of this State, but is principally occupied with well written matter showing the advantages and prospects of Oakland.

ANTIOCH AND VISALIA RAILROAD.—The *Contra Costa Gazette* of the 25th inst. says: The expedition under direction of Russell Eddy, which had been out some six weeks surveying a railroad route from Antioch to Visalia, returned last week, having successfully completed the work intended; and it is said that 10 per cent. of a capital stock of \$4,000,000 has been paid in.

POPULAR LECTURES.

Chemistry and its Applications.

[Prof. EZRA S. CARR before the MECHANIC ARTS CLUB, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

Earth and Man.

Owing to some mis-connection the apparatus for the usual chemical lecture was not in readiness on Saturday evening, and Prof. Carr accordingly treated the students and visitors to an original written lecture on Earth and Man—to use Guyot's brief and expressive title for that broad and rich field,—though neither the title nor the matter of the Professor's lecture was from Guyot or any other one author.

Man was in the beginning commanded to subdue the earth. He has learned very many of Nature's great laws, like that of the eclipses. A wise conception of the ancients considered him as a microcosm, and he was indeed the true Jacob's ladder on which the angels ascend and descend—the Lord at the top and the earth at the foot; man intercommunicating with and benefiting from all.

Climate, as furnishing the key to man's development, was then enlarged upon with copious illustrations drawn from the generalizations of physical geography and the history of the civilization of races.

The average annual temperature of the great northern planes of British America and Siberia, the table lands of Asia, the heated plains and plateaus of Africa, with their respective populations, were contrasted with those of Europe and China. The population of one small island, even, had acquired more power and wealth and had done more for the dissemination of civilization, than the scores of nations covering many millions of square miles not favored in this particular essential to the growth of race into power.

The first and chief superiority of America and Europe lay in their uniformity of climate. He cited conquests of southern by northern people, the East Indies, Africa, and even Rome, explaining the fact by observing that the organic functions in favored climates were expended rather in mental and moral growth than in mere physical adaptation to conditions of life. The chests of inhabitants of the warmer latitudes were narrow, those of the more northern broad. Whenever natives of the higher latitudes went south, they were subject, from their accustomed more respiratory food, to an excess of animal heat, and consequently to fevers; while natives of the south going north were subject to rheumatism and consumption from not generating a sufficiency of animal heat. Accordingly the highest physical perfection had developed itself in the temperate zone: oval faces and well marked features, *rs.* flat face, small eyes, ill-defined features in Asiatics, advancing jaws and woolly hair in Africans, etc., and diminutive stature in general in either cold or hot countries, Patagonia not excepted.

A mean annual temperature of 60°, and where the variations are small, seemed to be the conditions that were the most favorable; where the winter is not more than 10° below and the summer not more than 10° above the average.

Brazil and Peru were contrasted as to climate and progress; the former unconquered and wild, because man is overawed by nature; the latter the cradle of an ancient civilization, which, being the earliest and foremost civilization of the new world, somewhat singularly compared with that of Egypt, the first in the old, as both having originated in rainless countries.

Hindustan, a most favored land as to tropical richness and situation, yet conquered by the Mistress of the Seas, was referred to as a case of the natural weakness inherent without the proper tone that is given only by a favorable climate.

The results of the felling of forest had shown, however, conclusively, that man has it in his power, to a great extent, to regulate the circumstances of heat and moisture.

Races, like individuals, could die young or wear out. Of what use was the extension of civilization if dying at the center we find greenness and vigor only at the outer borders? Were we, the Americans of to-day, but the outer circulation of European life, or was there a new center forming here of a permanent race?

If any land was ever destined to grandest ends, he ventured to believe it was this most favored land of ours, where there are no higher nor lower orders save those who do nothing for the improvement of mankind, where there is no despot save ignorance. And was it not enough to stimulate us to the noblest efforts of humanity, to be set in the 19th century, with Europe behind us and Asia before us, while we are ourselves enacting the completion of the circle of civilization that shall girdle the earth? Was it too much to hope that here Nature would find her grandest secrets revealed and her highest types fulfilled?

The lecturer concluded his eloquent peroration with some verses so appropriate to the theme that we regret we are not able to quote them in full, nor even to name the inspired author. The attendance of students and the evident interest in, and utility of, this practical department of the State University continue unabated.

Saturday, April 1st, will conclude the chemical course, and Prof. Swinton follows on Literature and Language.

Steam-Power vs. Electricity.

Prof. Morton, of the Stevens Institute, Hoboken, N. J., gives in a New York paper the following statement of the relative economy of steam and electricity for motive power:—

"The doctrine of conservation of force (now as well established as that of gravitation) teaches us that a certain maximum of force can be developed by the use of a given quantity of any material—as, for example, coal in a steam engine, or zinc in a galvanic battery—which may be more or less completely utilized, but cannot be exceeded. Thus, a pound of coal burned in one minute, if applied without any loss whatever, would develop 332 horse-power for that time; as applied in practice in our ordinary engines, it develops but about 12 horse-power, all the rest being lost. We see here what a margin for improvement exists. We are getting but from three to five per cent. of the 'good' out of our fuel, and we might suppose that some other way of developing force, if less wasteful, might be economical, even if a more costly material than coal were consumed.

"All galvanic engines derive their power from the zinc consumed in the battery. Now, a pound of zinc consumed under the most favorable conditions (*i.e.* without any loss of effect whatever), could yield 35 horse-power for one minute, or say about one horse-power for an hour, if applied to a machine in which there was no loss of effect.

"An absolutely perfect galvanic engine, actuated by a perfect battery, could then, at the best, develop but one horse-power per hour from each pound of zinc consumed in that time (strictly, '917 of a horse-power). Or to develop 2½ horse-power for 10 hours would demand the consumption of about 27 pounds of zinc, and this, he it remembered, without allowance for any loss in the battery, which we know to be very great, or in the galvanic engine, which we may be sure is something. A common steam engine would require for the same work about 125 pounds of coal, or about four times the weight, but then coal is between 50 and 60 times cheaper than zinc. The weak point of the galvanic motor is, then, not only the high cost of zinc, but the low efficiency of that material, being but about one-sixth that of coal, weight for weight."

REPORTED GOLD DISCOVERY.—The utmost secrecy prevails among the knowing ones, regarding the developments from the auriferous regions on the Santa Cruz range. The mines are situated a short distance from the town of Felton, the great lumbering district, but a short distance from the coast. Some ten or twelve years ago, rich placer diggings were discovered in close proximity to these new quartz mines, and for a while paid at the rate of \$7 or \$8 a day. The ore finally gave out, and without further prospecting the party at work left for fresh fields. The old mill yet remains, and the indications in that vicinity are said to be very good for a paying lead. Instead of a pocket, which, when washed out, leaves no further developments, the new mines seem to contain an inexhaustible amount of gold-bearing rock, that is, as far as heard from. The rock that has thus far been taken out, assays at a high figure, and if the hopes of the discoverers are verified, there is a fortune for somebody. We hope to hear in a few days whether the mine is as rich as has been reported.—*San Jose Patriot.*

GOOD HEALTH.

Catarrh.

[Written for the PRESS.]

As much of the general information upon this subject has been furnished by the "patent medicine man," some errors are generally entertained which public welfare dictates should be corrected.

What It Is.

Catarrh, from the two Greek words *kata*, down, and *rein*, to flow, is the name given to a mucous discharge from the nose, head and throat. Any mucous membrane may become diseased, so that it will secrete and discharge an unusual amount of mucous, consequently we have nasal and bronchial catarrh, ophthalmic catarrh, leucorrhœa catarrh of the stomach, intestines, bladder, etc. Catarrh of every form may be either acute or chronic, according to the length of time, since its invasion, and the changes which have taken place in the mucous surfaces. There are also some forms of specific catarrh, communicated by contact, but they need not necessarily be described at this time. It will, however, be understood that any unusual flow of mucous, from any mucous surface as a result of disease, is catarrhal in its character.

Symptoms of Catarrh.

The discharge generally first makes its appearance upon "taking cold in the head." There is always a feeling of heat and swelling of the face, the head aches, the eyes are red and watery, there is a sense of tightness or constriction across the forehead and root of the nose, with a feverish sensation, with thirst, alternate heat and chilliness, and an extreme sensitiveness to cold. The nose becomes "stopped" and discharges an acrid mucous. This may continue several days, but if the general health is good and no more cold is taken the acute catarrh "gets well itself." On the other hand, if there is a catarrhal diathesis, a constitutional predisposition to it, the cold does not get well itself, but more is taken and repeated till an acute catarrh becomes chronic when the whole lining mucous membrane of the nose and sinuses of the head and face become deeply diseased and "perfectly rotten." At this stage it is either difficult or impossible to breathe through the nose, the discharge is thick, and sometimes very offensive, and runs down into the throat.

Ozena from the Greek *ozein*, to smell, or *oze*, a stench, is a form of catarrhal disease of the nose characterized by a deep redness, a thin acrid discharge, sometimes scabs inside the nose, a tendency to ulceration, not only of the soft tissues, but also of the cartilages and bones of the nose, and in its well developed stages, by a very offensive odor. Its constitutional dyscrasia seems to be more deeply laid than that of ordinary nasal catarrh, so much so that it does not necessarily depend upon a "cold in the head" to arouse it into activity. Ozena inclines to penetrate—eat into the tissue—while ordinary catarrh spreads more easily over a larger surface. Ozena may destroy the nose, while catarrh extends to the head, throat and bronchial tubes when it is called bronchial catarrh or bronchitis.

In the advanced stages of either catarrh, leucorrhœa or ozena, the blood is generally pale and dark colored, the countenance is pale, the appetite is capricious, the stomach is deranged, the bowels are irregular, and there is a feeling of weakness and languor, a sensitiveness to cold, with cold feet, and heat of the head. The poor patient "feels sick all over." In view of these facts, it must be admitted that chronic catarrhal affections are not local in their character, but on the contrary, the whole system is deranged and every organ and tissue is in a diseased condition. If the blood was rich and healthy and the patient was strong and vigorous, the catarrh would soon get well itself. On the other hand as long as those irritating causes exist, they are capable of not only sustaining but producing local catarrhs.

Mal-practice.

In view of the above facts how utterly foolish it is to rely upon snuffs, washes, or any other patent local application to cure a disease of such a general character. Local applications may be found to smother over any old ulcer, yet it will break out again as bad as ever and so it is with catarrh,—temporary relief is only afforded—the disease is only suppressed to break out again with greater energy. This is so uniformly true, that it may be safely

asserted that no case of catarrh was ever cured by the use of local applications only. If this subject was properly understood, people would not ruin their prospects for a cure and squander their money for preparations which are gotten up for the express purpose of enriching their manufacturers, but are utterly useless for the purposes employed. Instances are so abundant in the experience of every intelligent physician, of persons seeking his aid after having gone the rounds of quack nostrums and patent medicines without benefit, that no one having a sense of justice and a desire for the welfare of the community in which he lives, can refrain from condemning such wholesale deception in the strongest terms.

How to Prevent and Cure Catarrh.

In order to do this the first and most essential rule to be observed is to avoid taking cold. To do this, the feet should be kept clean, dry and warm. Bathing every day is not good, but dry friction over the whole surface of the body till a healthy glow is produced, once a day, with a flesh brush or hair mitten should be practiced.

The clothing should be sufficient to keep the body comfortable but not too warm, and should be changed throughout as often as twice a week. It is generally best to wear flannel next the skin.

The sleeping apartments should be kept well ventilated and dry. To do this a good fire in the room once or twice a week is proper, and essentially necessary in all damp localities. This is true of every portion of the city of San Francisco, and every other place near a large body of water, when the atmosphere is loaded with vapor. The food should be light, nutritious and easily digested, and the drink should be pure cold water.

Medical Treatment.

This I would gladly give if I could, yet, the influence of age, constitution, form and stage of disease and its complications are so numerous, that any attempt of that kind would only prove a positive failure, as far as benefit from self-treatment by the people themselves is concerned.

It is therefore advisable in this, as in all other forms of disease, for the people not to *dose themselves*, but to use every sanitary measure possible to keep well; but if medicine is necessary, to procure it from those who have made the application of medicine to the cure of disease a special study and practice and are thereby able to give permanent relief without producing medicinal complications which are more aggravating and difficult to cure than the original disease itself. E. J. FRASER, M. D.

San Francisco, March 26, 1871.

NEW REMEDIES FOR BURNS.—Two new remedies for burns are added to the long list. The first is charcoal. A piece of vegetable charcoal laid on a burn at once soothes the pain, says the *Gazette Medicale*, and if kept applied for an hour cures it completely. The second one is sulphate of iron. This was tried by M. Joel in the Children's Hospital, Louisiana. In this case a child, four years of age, had been extensively burnt, suppuration was abundant and so offensive that they ordered the child a tepid bath, containing a couple of pinches of sulphate of iron. This gave immediate relief to the pain, and being repeated twice a day—twenty minutes each bath—the suppuration lost its odor, and the child was convalescent.—*Medical Press and Circular.*

THE SKIN A BREATHING ORGAN.—Some animals breathe more through the skin than they do through the lungs; and in some animals the whole process of aeration of the blood is performed through the skin. In the human being the skin is, to a large extent, a breathing organ. Fatal disease of the lungs is often caused by an obstructed skin. In one of the ceremonial processions at Rome, attendant on the installation of a new Pope, a child, having the whole surface of the body gilt, was paraded. The consequence was the death of the child. This melancholy fact may serve better than a long lecture, to convince people of the importance of "keeping the pores open" of which there are more than three thousand on every square inch of surface.

AN IMPORTANT CAUTION.—Books which have been handled during recovery from scarlet fever should be burned after they have served their purpose for the patient. A writer in the *Athenæum* says that in the stages of recovery such books frequently become charged with germs of the disease.

THE Chinese relieve neuralgia and gout by applying oil of peppermint over the affected part with a camel's hair pencil.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, April 1, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 29, 1871. Legal Tenders
buying @90%; selling @90%. Gold in New York to-day
110%.

Table of Contents.

Boiler Feed Regulator and Low Water Alarm, Ill.; Colorado Deep Placers; Refining Gold by Chlorine.....	193
MECHANICAL PROGRESS.—Pneumatic Mail Tubes; High Speed for Wood-working machinery; Locomotives and Road Steamers in New Jer- sey; Allen Engine; Express Locomotive; Iron Tender Frame.....	194
SCIENTIFIC PROGRESS.—Effect of Light at Dif- ferent Depths; Microscopes; Magic Lantern; Darwin on Conscience; Glacial Motion.....	194
San Diego Mines; Bull Run District, Nevada; A People on Stilts, Ill.; Gates of Puget Sound	195
MINING SUMMARY; Shareholders' Directory; Mining Stock Market; Market Rates—196, 197 List of Patents; Notices of Recent Patents; Injector for Steam Boilers, Ill.; Autographic Printing Press, Ill.; New Ellipsograph, Ill.; State Prisons.....	198
Earth and Man; Steam Power vs. Electricity; Catarrh.....	199
Assaying; Norway and the Pacific Coast; Me- chanics Institute; Pacific Railroads; Oxygen and Hydrogen.....	200
Hay Press, Ill.; Gopher Trap, Ill.; Power Press, Ill.; Meteorite; Consolidation.....	201
DOMESTIC ECONOMY.—Putrid Food; Ley Hom- iny; Tanning Sheep Skins; Domestic Receipts; Mechanical Hints.....	202
Silk Culture in Utah; Silk Culture in the Min- ing counties; Domestic Sugar Culture; Vital- ity of Redwood Trees.....	204

MECHANICS' INSTITUTE INDUSTRIAL EXHIBITION.—We have received the catalogue of the Eighth Industrial Exhibition, the substance of the greater part of which we have already published. The catalogue contains the rules and regulations with regard to articles for exhibition, the classification of exhibits, and the various premiums. The following grade of premiums will be awarded:—1st premium, gold medal; 2d premium, silver medal; 3d premium, society's diploma; 4th premium, honorable mention. The medals will be accompanied by certificates of award. Further and special premiums may be awarded. The special cash premiums we have already given in full. The catalogues and particular information may be obtained of Mr. J. H. Gilmore, Special Agent, Eighth Industrial Exhibition, San Francisco.

THE PACIFIC RAILROADS.—We are indebted to the kindness of Senator Stewart for a copy of his Report in relation to freights on the Pacific railroads. The gist of the report is that the interests of the government are clearly connected with having the Pacific railroads remain as at present, and are best served by patronizing the roads to the full extent of the public business. Mr. Stewart has also sent us the Report of the Judiciary Committee with regard to whether the railway companies are bound to reimburse the government for interest on the bonds received from the U. S. before the maturity of the principal thereof. A negative answer is given.

THE AMERICAN WHALING FLEET now numbers but 285 vessels, with an average measurement of 85,000 tons, against 670 vessels, aggregating 220,000 tons in 1857. Of the number now afloat, New Bedford owns 174; and one-half of those to arrive this year, will be withdrawn from the business.

TWELVE thousand pounds of buffalo meat and 100 antelopes were lately received in Boston.

Norway and the Pacific Coast.

An article in our excellent German contemporary, the *Berg und Huettenmaennische Zeitung*, concerning mining in Norway, contains so much which might be said concerning our coast, that we cannot refrain from giving a free translation of it. Our readers of the interior can substitute for the word *Norway*, the name of their respective districts in many instances with good effect, although, probably nothing was further from the intention of the writer than to think of such a substitution. The article is likewise interesting for the information it gives concerning Norwegian mining.

Although Norway is remarkably rich in metals, yet mining and smelting are far from obtaining the extensive application which is warranted by the mineral wealth of the land. The cause for this condition, which is so injurious to the industry of the country, is to be sought principally in the following reasons:

1. The transportation of ore is rendered difficult by the want of proper means of communication, and is hence too expensive to permit working.

2. Norway has not the necessary institutions for educating miners, and almost all her best engineers must get their education first in foreign countries.

3. There is a lack of capital for carrying on extensive operations, and the greater part of the mining property now worked is consequently held by outsiders. Nevertheless, there is commencing to be an improvement in the condition of the land, and as the founding of a mining academy is proposed, it is probable that more attention will be given this source of wealth.

There is, however, a special difficulty to be surmounted in order to gain the confidence of capitalists, which has been much weakened by the following circumstance. There is in Norway a very large number of deposits which lie near the surface, but have no depth. Ignorance of mining and a spirit of speculation, in connection with these, have given many a heavy fall to capitalists, and have prevented the working of the many really valuable deposits. So soon as Norway, however, has a proper mining academy and skilled miners possessed of the necessary knowledge of all the conditions of the land, mining will assume its proper position, especially if a necessary change in the laws is made, to relieve mining operations of certain burdens now imposed.

In regard to the different metals which Norway produces, iron takes the lead, although it is inferior to the Swedish article, and the importations exceed the exports. The production of silver, which is limited to the works at Kongsherg, and to one other (small) mine, is not unimportant, although generally over-estimated in the country. The amount of gold produced is exceedingly small, but lately richer indications have been found in the northern mountains. After iron come copper, nickel and cobalt, and since 1861, pyrites have formed one of the most valuable products of the Norway mines. Copper and nickel have increased particularly in importance in the last five years.

LIVERPOOL COPPER MARKET.—There was, during February, as we learn from the March report of James Lewis & Son, a good consumptive demand for copper produce at gradually advancing rates. There was a noticeable disparity between the improvement in bars and that in furnace material, the former having advanced \$5 per ton and the latter 12 cents per unit, equal to \$12.50 per ton of fine copper. This arose from the large amount of bars on hand and the deficiency of ore and regulus. The local smelters had secured all the ore and regulus obtainable at and under \$3.37 per unit. Quotations for ore at Liverpool were \$3.37 to \$3.43 per unit. Quicksilver was reduced to \$56.87 per flask.

Assaying.

A few days ago, a gentleman showed us a number of certificates, from different offices, of assays made of some rich galena ore. The ore he claimed to have carefully sampled previously, and the difference in the returns he thought was very much greater than could result merely from any difference in the samples.

Not seeing the ore and knowing nothing of the circumstances, we could of course give no opinion on the matter. But the incident furnishes us with a text concerning one point in assaying on which enough stress is not put in practice. We have visited a large number of assay offices in our wanderings from New York to San Francisco, and we have found ample illustrations of the proverb that "a want of care does more damage than a want of knowledge."

Care and method are two most important requisites for a good assayer, and a want of them, we are inclined to believe, vitiates more assays than almost anything else. We have often heard an assayer, when making a number of assays, guess that this sample or that bead was that of a certain ore. He had neglected to mark it, and could not know with absolute certainty whether it was from this or that lode. Now, when we hear an assayer guess at such a thing, we form an opinion immediately as to the value of his returns.

There is probably no better assayer in the world than Prof. Fritzsche, of Freiberg. It is really beautiful to witness his skill and accuracy. At the same time, there is perhaps no more methodical person in the universe. He insists on every thing being done exactly in one way, the samples must be placed in exactly such an order every time in the furnace, the tongs must be held in exactly a certain manner, etc., etc. The greatest stress is placed by him on such apparently little matters; but the more we see of assaying, the more value we are inclined to put on just these little matters. Order and method in everything are essential. It is much cheaper and simpler and precisely as good to guess at the amount of precious metal in ore, as to guess which bead belongs to a sample.

An assayer who is accustomed to follow a fixed rule in such matters, is much less liable to mistakes than one who has no order in his office. This is perhaps a platitude in theory, but it is something more in practice.

A successful teacher of assaying used to tell his scholars at the commencement of the course that there were three fundamental principles of this branch of mining,—exactness, cleanliness and fairness.

When we find great differences in the results of assays of the same ore, if we do not find an explanation in the character of the ore, we are inclined to seek it in a want of one of these principles. Of course there are many persons who are unable to make a correct assay, but there are also many who have sufficient knowledge and honesty, but fail in the points mentioned and therefore fail wholly as assayers.

While on this subject we may speak of a kindred matter. We have been asked concerning the assay of gold quartz by taking the specific gravity. No assay of this kind is worth much. But in purchasing rich quartz specimens it is at times desirable to ascertain their intrinsic value without destroying the specimen. When there is no foreign matter present, this can be done approximately by determining the density of the mass. We therefore adopt a suggestion made to us, and publish the following table from J. Arthur Phillip's work.

The table exhibits the proportion, by weight, of gold in auriferous quartz of a given specific gravity. In calculating it, the specific gravity of gold is taken as 19, that of quartz as 2.6. The table is read thus, for instance: Auriferous quartz, whose specific gravity is 5.2, contains

0.5793 of its weight of gold; or, which is the same thing, 10,000 ounces of the quartz contain 5,793 ounces of gold.

TABLE

Showing the proportionate weight of Gold in a mass of auriferous quartz, when the specific gravity of the mass is known.

Specific Gravity	Proportion of Gold	Specific Gravity	Proportion of Gold
2.6	0.0000	5.2	0.5793
2.85	0.0219	5.4	0.6007
2.7	0.0429	5.8	0.6206
2.75	0.0632	5.8	0.6392
2.8	0.0828	6.0	0.6585
2.85	0.1015	6.2	0.6797
2.9	0.1198	6.4	0.6879
2.95	0.1375	6.6	0.7021
3.0	0.1545	6.8	0.7155
3.1	0.1699	7.0	0.7282
3.2	0.2172	7.2	0.7402
3.3	0.2458	7.4	0.7515
3.4	0.2775	7.6	0.7622
3.5	0.2979	7.8	0.7734
3.6	0.3215	8.0	0.7820
3.7	0.3444	8.5	0.8042
3.8	0.3659	9.0	0.8239
3.9	0.3862	9.5	0.8415
4.0	0.4055	10.0	0.8573
4.1	0.4239	10.5	0.8717
4.2	0.4413	11.0	0.8847
4.3	0.4580	11.5	0.8966
4.4	0.4739	12.0	0.9075
4.5	0.4892	13.0	0.9268
4.6	0.5037	14.0	0.9434
4.7	0.5176	15.0	0.9577
4.8	0.5310	16.0	0.9703
4.9	0.5438	17.0	0.9813
5.0	0.5561	18.0	0.9912
5.1	0.5679	19.0	1.0000

OXYGEN AND HYDROGEN are manufactured by the New York Oxyhydrogen Gas Company in large quantities. It is stated in the *Arbeitsgeber* that about 80,000 cubic feet of oxygen are produced daily, according to Tessié du Motay's process. Oxygen is sold for 5 cents per cubic foot and hydrogen for 2 cents. The oxygen is employed in this vicinity not only (as in Europe) for chemical experiments, but also for medicinal purposes and especially for producing a brilliant light for building purposes, etc., as in the case of the New York bridge. The demand for hydrogen gas is considerably less than that for oxygen, as common illuminating gas is used largely for feeding the oxyhydrogen gas, lamps. The brilliancy of an hydro-oxygen flame, which is fed with illuminating gas is about 16½ times as great as that of a common gas flame with the same consumption of the illuminating gas. The use of this hydro-oxygen gas with the magic lantern, for illustrating lectures, etc., is very considerable.

A NEW HOME MANUFACTURE.—While not excluding ourselves in a provincial manner from the rest of the world, it is wise to help ourselves as much as possible by fostering home industries. The beginning of a new home manufacture should be encouraged, as it will redound to our own personal benefit hereafter. We have room here on our coast for many a factory, and extensive manufacturing establishments are needed to develop our resources. And they can be made to succeed. When Mr. Selby proposed erecting shot works, a failure was predicted. These works now not only furnish our home supply, but even export in considerable amounts. This is one example of many. They are now engaging in another manufacture, that of a composition water pipe, which is claimed to be lighter than the ordinary lead pipe, cheaper than iron, and very strong and serviceable; and to this fact we wish to call attention. Selby & Co., 116 California street, have samples for examination.

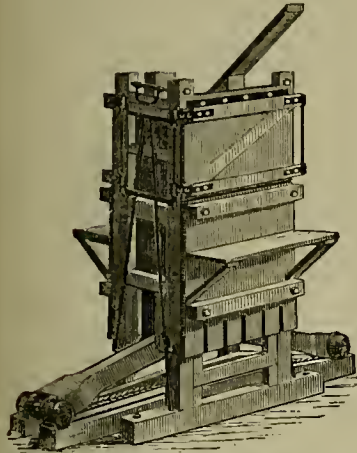
COMMENDABLE LIBERALITY.—The Humboldt Register says that the Central Pacific Railroad Co. has made a very liberal offer, and one which will enable every property owner in Winnemucca to procure shade trees free of cost. D. H. Haskell, town-site agent for the company, is authorized to supply the citizens with 250 trees of the mulberry variety, and deliver them at the depot in that place free of cost, to all who will promise to set them out and care for them. Would it not be to the interest of the company to make a similar offer to every town and stopping place along the entire route of the road?

GROWTH OF THE PEPPER TREE.—In Los Angeles there is a pepper tree grown from a seed planted three years ago, the trunk of which measures over eighteen inches in diameter.

The Eagle Hay Press.

We give herewith a representation of what is claimed to be the most efficient hay press ever introduced to the notice of the public. It is known as the "Eagle Hay Press," the invention of J. A. McGillivray, of Illinois, by whom it was patented in 1865. Its large sale in the Eastern States has induced the proprietors to introduce it into California and the Pacific States.

The power is applied by means of two levers, arranged in such a manner that



its application increases in ratio to the resistance, as the levers approach a horizontal position. It is not only a powerful press, but it is simple and not liable to easily get out of order; hence it can be afforded cheap. It is said that three men, with one horse can bale from 10 to 15 tons of hay per day, each bale weighing from 250 to 300 pounds. It is also well adapted for pressing hides, rags, wool or cotton. When a bale is pressed and fastened, the follower runs down of its own weight, and the bale can be taken out on either side.

These presses are now manufactured by the Kimball Car and Carriage Manufacturing Co., of this city—the most extensive establishment of the kind, on the Pacific coast, who are the proprietors of the patent for this cost, and who warrant that every press made by them shall give perfect satisfaction, and at prices within the reach of all. The well-known reputation of the company is of itself a good guarantee that whatever they take hold of is valuable and well worthy of general attention.

Gopher Trap.

We have previously spoken of a simple and effective trap, invented by Mr. D. N. Phelps, of San Leandro, and patented through the SCIENTIFIC PRESS Patent Agency. We now give a small cut show-



ing the construction in which one or two improvements have been made. The trap consists of a stout wire, bent so as to form a spring trap as shown in the drawing. It is sprung by pressure against a broad sheet-iron trigger. The dotted lines show the trap when sprung. It has been tried in a large number of cases with great success.

The trap is made of different sizes, and by a slight change in the adjustment of the trigger, can be used for catching rats. It is, indeed, used for various "small deer," squirrels, rabbits, skunks, badgers, coons, foxes, coyotes, etc., etc. Its effectiveness recommends it highly to our farmers. It is manufactured by Mr. Phelps, who may be addressed as above.

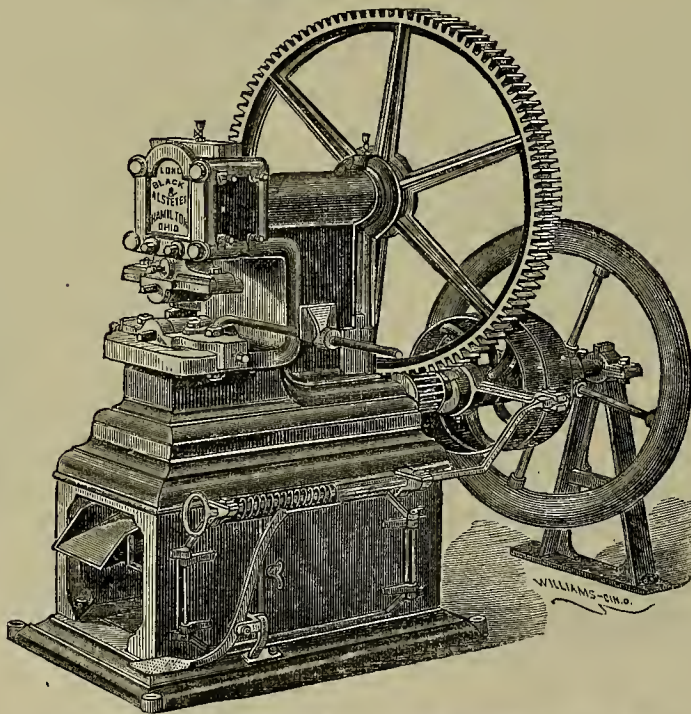
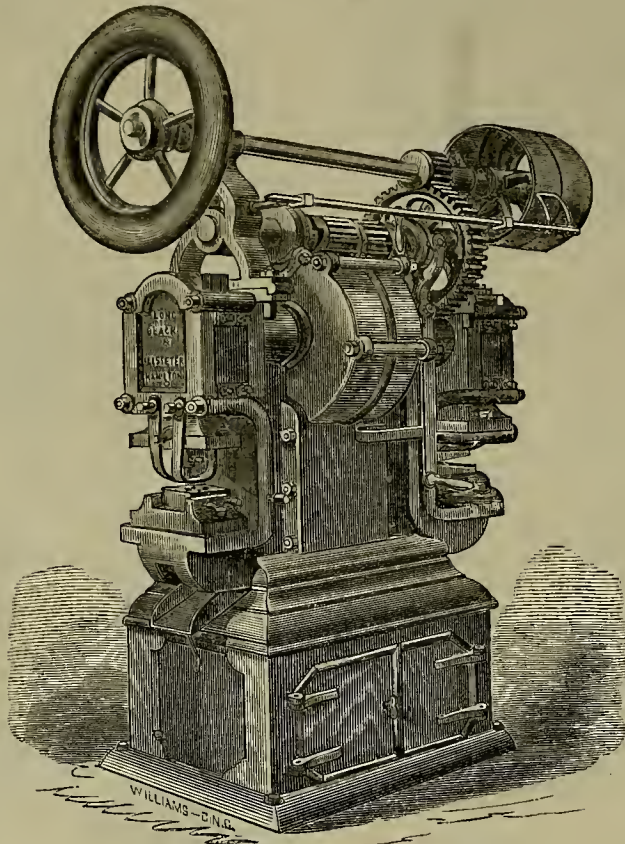
A WHITE-WINGED TEAL DUCK was lately killed in Yolo county, and is now on exhibition, stuffed, at Corbin's saloon, Sacramento.

Power Press, Punches and Shears.

Among the machines which attracted considerable attention at the late Industrial Exposition at Cincinnati, those shown in the accompanying illustrations were particularly prominent, on account of the great power and exceeding ease which they exhibited in working.

The manufacturers, Messrs. Long, Black

They have also perfected a double machine of medium size, either end of which can be worked independently of the other, or both can be used at the same time if required. It is a very desirable machine for wagon, drill, or plow makers, or for any other light work. It is capable of punching a $\frac{3}{4}$ inch hole through $\frac{3}{4}$ or $\frac{1}{2}$ inch iron, or will cut off $1\frac{1}{4}$ inch round, or shear off $\frac{3}{4} \times 4$ inch iron. It is also very



LONG, BLACK & ALLSTATTER'S POWER PRESS, PUNCHES AND SHEARS.

& Allstatter, of Hamilton, Ohio, have, from the requirements of their business, been compelled to study the adaptability of power presses to the necessities of workers in iron. After fourteen years of experience, they have produced a machine which they claim to be unexcelled for power, durability and convenience. These presses and punches, in their various modifications, are adapted to the wants of railway, railway car, and iron bridge builders; for safe and boiler manufacturers, rolling mills, and makers of agricultural implements, and plow and wagon manufacturers, as well as the lighter kinds of work, such as cutting nuts and washers, or cutting and forming cutlery.

speedy in motion, being run to 40 or 50 motions of the slide per minute.

Messrs. Long, Black & Allstatter make seven sizes of presses; that for boiler makers and safe makers, has jaws 18 to 20 inches in depth to permit working in places inaccessible to the machine of ordinary shape.

FOSSIL METEORITE.—The *Academy* says:—"A new meteorite has just been discovered in the miocene deposits of Greenland, and brought to England. It has been offered, we understand, to the Trustees of the British Museum for £240. This is the first instance on record of a truly fossil meteorite."

CONSOLIDATION.—According to the *Colorado Register*, there is a probability of the consolidation of several companies owning adjacent claims on the Gregory lode at Central City. We are rejoiced to hear of such a step. It is especially needed in that region, and elsewhere. The paper mentioned comments to some extent on the subject, and speaks as follows concerning the California lode which is being worked for a distance of over half a mile and has produced over \$2,000,000. The remarks are capable of a wide application. "And what amount of this handsome yield is profit? We venture to assert not over 15 per cent. on the sum total, when it should be 20 per cent. per annum. We know that 300 feet of the Stalker & Standley claims alone gave a net profit above all expenses during the last two years of say \$150,000. But our question is, why is not this entire vein made to pay a profit of 20 per cent. per annum of its product, and its yield increased 1,000 ounces per month, or, say, \$20,000 of our currency? It is because Tom, Dick and Harry each own 100 feet more or less on the vein, and each must erect machinery, sink shafts, run levels, etc., in his own peculiar way and independent of the benefit his neighbor on either side could give him or he his neighbor, and thus each man has the same expense to break and raise the ore from his individual property, as one man would have in breaking and raising from the half dozen properties, and adding to what ought to be the actual cost three, four, or even six times. But let Tom, Dick and Harry consolidate interests and properties, elect one of their number manager, the rest go to work under his direction, and instead of running three or four different engines on that number of claims, run one and work the three or four properties; then the result from one main shaft would be that we could count with some certainty upon one-fifth to one-fourth of the product being a net dividend to the owners. But until there is such a consolidation either by sale or otherwise, there can be little hope of realizing a larger net profit than now. With such consolidation, success would be certain."

A COMMENCEMENT.—We have, from time to time, spoken of the destruction of fish in our streams, and the necessity of steps being taken to preserve a supply of the funny tribe. We see, however, that the work of getting rid of them has been going bravely on, and now the effect is being felt in at least one instance. According to the *Reno Crescent* the Truckee river is being cleaned out of the delicious trout for which that stream is famous. Owing to the obstructions in the river, few, if any, fish succeed in making their annual trip to the head of navigation. Though this is the regular spawning time, no fish are to be seen in the upper portion of the river, while below the dam of the Pyramid Lake reservation they are being caught by the wagon load.

TRUCKEE BURNED DOWN.—This unfortunate town, which has been the center of a very extensive business, has been again visited by a conflagration. On the afternoon of the 29th, the Kennebec Hotel caught fire and the flames swept through the town, destroying totally one hundred and fifteen to twenty houses. The Central Pacific freight house was burned to ground. Loss is very heavy, Cal. a most severe blow to the place.

A NOTEWORTHY OFFER.—Mr. O. W. Easton, a gentleman of very considerable experience in the mines of this coast, proposes to erect chlorination works at mines on a suitable scale, and in order to bring the matter within the means of the many, offers to erect and run them until he has received his compensation from the sulphurets worked. This is an offer which is well worth noticing, as it assures that the works will be a success. The idea is rather novel to our coast, and we call the attention of miners to the advertisement in another column.

THE SUTRO TUNNEL is now in 1,867 feet, with work constantly and rapidly progressing.

DOMESTIC ECONOMY.

THE USE OF PUTRID FOOD

Most civilized people prefer meat that is fresh and sweet, to that which has become more or less tender by partial decomposition; still there is a large portion of the enlightened world that prefer the latter.

Some barbarous nations prefer it after it has become quite putrid; as the Tartar and Siberian tribes and many others. The native New Zealanders, who eat large quantities of soaked and boiled corn, will not eat of it until after active putrefaction has set in from soaking. A decayed egg is said to be preferred by the Siamese to one just laid; and it is all the more esteemed if accompanied with an incipient chick.

In England, especially among the *gourmands*, fresh meat of any kind is not considered fit to eat until it has become repugnant to the refined olfactory organ. Venison especially is never put upon the table by them until the signs of its having been long killed are unequivocal.

This peculiarity of taste is nothing new in the world, for we are told that the highly polished Greeks and Romans were more given to such taste than any modern civilized people. They even sought out modes of slaughter which would hasten decomposition. The former strangled their swine and other animals so as to eat them with their coagulated blood, and early incipient decomposition. The latter people sometimes killed their animals by transfixing them with a red-hot spit or spear—an instrument which would cause death quickly and prevent the flow of blood. The Jews were a most remarkable exception to these practices—they were especially enjoined to “abstain from things strangled.”

It is worthy of note in this connection that wherever a people have professed to be directed in their course of life by the Most High, they have always been led into excellent ways, and into dietetic habits which, even in the light of the present high state of science, are pronounced the very best which wisdom can devise.

A false impression has been quite prevalent among many that meat long kept is more easily digested and therefore more healthy. But the truth is, that when food of any kind is taken into the stomach in a state of incipient putrefaction, that process is rapidly accelerated by the warmth and fluids of that organ, and at the expense of healthy digestion. This is true, no matter how slight a commencement has been made; even the incipient putrefaction so generally employed in “raising” bread seriously affects most stomachs, though the fact is not generally acknowledged.

Putrefactive matter is *poison*, and entirely inconsistent with healthy digestion. The human system accommodates itself to such poison, only by slow degrees, just as it does to the use of arsenic or any other poison; but evil effects are just as sure to be the result. Can any one, however small, can be taken into the stomach—as it must be when it enters the stomach—with impunity?

HOW TO SAVE YOUR SHOE SOLES.—Melt together tallow and common resin, in the proportion of two parts of the former to one of the latter, and apply the preparation hot to the soles of the boots or shoes—as much of it as the leather will absorb. One farmer declares that this little recipe alone has been worth more to him than the cost of five years subscription to the newspaper publishing it.

TO MAKE BOILED ONIONS LOOK WHITE.—Take a white or yellow-skinned kind. Skin them thoroughly. Put them to boil. When they have boiled a few minutes, pour off the water, and add clean, cold water, and set them to boil again. Pour this away, and add more cold water, when they may boil till done. They will be white and clear.

LEY HOMINY.—To a gallon of shelled corn, add a quart of strong ley. Boil together until the husks begin to come off the corn; rub the grains of corn between the hands, to entirely remove the husk; wash it well, and boil in plenty of water until the grains are soft. It requires long boiling. As water may be needed, replenish with hot water. Boil in it sufficient salt to season. When nearly done, stir it from the bottom to prevent its burning. Before using it, mash it slightly with a wooden mallet, and fry in a small quantity of lard or butter. It will keep several days in cold weather. Put it in a covered earthen bowl or jar.

Very fine hominy is made by moistening cracked corn with a little warm water to facilitate the removal of the husk, and fanning during the process. When the grains are sufficiently free of husk, wash well and boil until soft. When wanted for the table, mash and fry in lard or butter until the side next the pan has formed a good crust; lay a plate upon it and invert the frying-pan, or it may be seasoned with butter and only kept on the fire until hot. The large hominies are used principally in cold weather, grits or small hominy all the year round, being fresh-boiled every day.

TANNING SHEEP SKINS WITH THE WOLF ON.—Nice white sheep skins make handsome door mats, cushions, a warm spread to put on the floor for baby to sit on in winter time, and serve many other useful purposes. They would no doubt be much oftener found in the farmer's home, especially if he knew how to properly prepare them; hence we offer the following description of the manner in which they may be prepared:—Tack the skin upon a board with the flesh side out, and then scrape with a blunt knife; next rub it over hard with pulverized chalk until it will absorb no more. Then take the skin from the board and cover it with pulverized alum. Double half way over with flesh side in contact, then roll tight together and keep dry for three days, after which unfold it and stretch it again on a board or door, and dry in the air and it will be ready for use.

NUMBER OF OCCUPANTS TO A HOUSE.—The average number of persons to each dwelling in London is eight; in Paris, thirty-five; in Berlin, thirty-two; in Vienna, fifty-five; and in St. Petersburg, fifty-two. Thus it seems that the English are the most isolated dwellers of the European nations. It is usual with French and German families, upon the marriage of their sons, to assign them a portion of the family dwelling, so that three generations often occupy one hotel. In England every head of a family seeks a separate establishment, from the cottager to the lord. Such is also the custom in our own country.

MOTHS.—The following simple precaution against moths is represented to be quite as sure as any of the popular antidotes: Safety from moths for furs consists in baying them undisturbed through summer in a snug place. Muff boxes are not secure. Taking them out to the air occasionally exposes them to the moth. No pepper, camphor or tobacco is needed. After you have worn them for the last time in the spring put them into a linen pillow case, tie up the end in a tight knot, and shut them up in a drawer which will not be often opened.

TO PROTECT THE SLEEVES OF A DRESS.—It is often necessary to make biscuit for tea, or to wash supper-dishes in a very nice dress. Some protect their sleeves at such times, as follows: Take a pair of worn-out stockings. Cut them off at the ankle. Hem them, if you wish. When you want to use them, draw them on to the arms, top end first. They are so elastic that, if care is used in drawing them on, they will not crush the sleeves.

TO FRY SWEETBREADS.—Let them soak a few minutes in water. Take them out, and wipe them perfectly dry. Do not cut them or split them. Put on pepper and salt. Let the pan get hot, with a very little butter or perfectly sweet lard in it. Now lay in the sweetbread. Don't be in a hurry to turn them. If in danger of burning, remove from the front of stove. When cooked nearly through, turn them, and let them cook as long again. They must be well cooked.

CRACKER CUSTARD.—Make a rich lemonade with two lemons and one pint of water; sugar to taste. Add four grated Boston crackers, one tablespoonful of butter, and a little mace. Bake in paste.

Domestic Receipts.

“L. S. B.” Sacramento.—We can give only the receipts which you send. **To Make Corn Bread.**—Take one quart of meal, after sifting, put in two tablespoonfuls of brown sugar, half a teaspoonful of salt—too much salt in corn bread makes it hard—pour on boiling water until the meal is of the consistency of thick mush; when it is cool enough to work without burning your hand, put in half a cup of yeast, then a coffee cupful of flour, mix well and put in a well-buttered pan for baking; allow it to stand in a warm place for one hour, to rise; it must not rise as much as wheat bread, else it will fall in baking. Put it in the steamer, and steam for three hours; then in the oven, and bake one hour. You will find this bread light and healthy. Corn bread should be made when other cooking is going on, to save fire and extra labor.

To Make Wheat Bread.—The same correspondent sends the following: It is better to make four small loaves than one large one, because a cut loaf dries faster than one uncut. Take a teaspoonful of salt, mix in flour enough to knead well, and stand away to rise. When light, pour the dough out on the mixing board and knead well. Now cut the dough into four equal parts; butter the baking tins, mold your loaves, and place them in the tins. When light, place in oven and bake. If the crust is too hard, wet it a little when cold.

COTTAGE CHEESE.—Pour boiling water into a pan of “loppard” milk; it will curd at once; stir it and turn into a colander, pour a little cold water over it, salt it and break it up. A better way is to put equal parts of butter-milk and thick milk in a kettle over the fire, heat it almost boiling hot; pour into a linen bag and let it drain till next day, then take it out, salt it, put in a little cream or butter, as it may be, thick or not, and make it up into balls the size of an orange.

SWEET BISCUIT.—Make a dough of butter-milk and the best Graham flour, adding a teaspoon of sugar to two quarts of wetting, and just as little soda as will overcome the acidity of the buttermilk. Mold the dough as soft as it can be handled, roll it out to the thickness of three-fourths of an inch, cut round with a cookie-cutter, and bake in a quick oven. A teaspoon of chopped raisins is an agreeable addition.

SCORCHED GOODS.—Boil them in milk and turpentine, with half a pound of soap, half a gallon of milk. Lay in the sun.

Mechanical Hints.

PRECAUTIONS IN MAKING VARNISH.—As heat is often used in dissolving gums for making varnish, there is always more or less danger of the mixtures taking fire from boiling over, upsetting or by some other accident. To avoid danger it is well to always have a piece of board close at hand to cover the top of the vessel, in case the spirits or other mixture takes fire within the vessel, as it sometimes does. A further precaution, and the only effectual one to use if the liquid boils over, is to have a piece of wet blanket always at hand, sufficiently large to cover both the vessel and the stove or fire. This should be instantly thrown over in case of fire, to smother it. Water will be of little use; loose earth or sand is much better. These precautions should always be taken.

TO BRONZE ON WOOD.—Having stained those parts intending for bronzing black, by any of the usual methods, take japanners' gold size and mix with a small portion of Roman ochre and Prussian blue; go over the blacked parts lightly; then suffer it to dry till it feels sticky to the fingers, but not to come off; then with a hard ball of cotton dipped in any of the bronze powder, rub those places that are prominent, and, if you think proper, give it a thin coat of japanners' gold size, thinned with spirits of turpentine; or you may alter the color of your bronze by mixing either more or less blue, as also other colors, as verditer green by itself; but do not put your color on thick over the black stain, but rather glaze it on, for it is not wanted in a body, but should be rather transparent, as it gives it more of a metallic appearance.

TO IMITATE BLACK WALNUT.—There are two ways of doing it. One is by staining pine or other light colored wood with Vandyke brown or burnt umber mixed with oil, and afterward varnishing. The other is by painting first a light ochre color, in oil, staining when dry with water-color made up of Vandyke brown, umber, or any other suitable pigment. When this is again dry, varnish with damar, copal, amber, or some other resinous turpentine varnish.

Life Thoughts.

SELF-RELIANCE.—For that thou canst do thyself, rely not on another.

The happiest man is the benevolent one for he owns stock in the happiness of all mankind.

No man is master of himself so long as he is a slave to anything else.

A Wise man makes more opportunities than he finds.

SHAKESPEARE defines charity: “Gently hear, kindly judge.”

Don't give up trying to do right. Whatsoever your trials may be, look above for strength to do your duty, and leave the result with God.

If the highest life is that which is inspired by faith in God, the most efficient is that which is energized by a spirit of faithful labor.

The aim of an honest man's life is not the happiness which serves only himself, but the virtue which is useful to others.

Sorrow comes soon enough without despondency; it does a man no good to carry around a lightning-rod to attract trouble.

The man who feels remorse for the evil he has done is to be pitied; but there is one being still more unfortunate, he who feels his guilt beforehand, and still commits it.

MANKIND has been learning for six thousand years, and yet how few have learned that their fellow-beings are as true as themselves.

The more a man knows, the less he is apt to talk; discretion allays his heat, and makes him coolly deliberate what and where to speak.

The worthiest people are most injured by slanders; as we usually find that to be the best fruit which the birds have been picking at.

Poverty and pride are inconvenient companions; but when idleness unites with them, the depth of wretchedness is attained.

What stubbing, ploughing, digging and harrowing are to land, thinking, reflecting and examining are to the mind.

How to be a Man.

A few words of advice to such young men as wish to be anything or to achieve anything in this great, busy, bustling world, is given in the *Spectator* of this city as follows:—

1st. Would you be a man! When Diogenes went through the city of Athens, with a lighted candle, in open daylight, being asked what he was looking for, he answered, “A man.” Would you be a man, in the sense of Diogenes, in this famous laconic reply. If so, consider what it is to be “a man.” Study the truest models of manhood. Make your ideal, and keeping it steadily in the mind, make a persistent, unrelenting effort to grow up to this standard.

Inquire, diligently, what are the elements upon which men of this pattern have subsisted and grown up to their noble proportions. Your having before your minds a grand ideal will stimulate and sustain your energies and by a mysterious law of your mental nature will operate a gradual conformity and approximation to this lofty standard, which habitually attracts your mental gaze.

If the best models, being well studied, improve the taste in fine arts, and inspire genius with the power of high execution; if the reading of the best books, with attention, elevate the taste and the style of composition; it is also, that a careful study of the highest style of manhood, will gradually lift up the student to the same lofty standard in all of its essential elements. To say the least you will be much more of a man, for having aspired to the noblest type of true manhood. In another paper, we will record some reasons for setting before your mind an object, to be aimed at, a noble, worthy object in order to high achievement, and in order to avoid the odium of having life a failure.

ANGRY WORDS win nothing but contempt. Have you ever chanced to catch a glance at yourself in a mirror when in a violent rage? Did you not make a ridiculous picture? The distortion which anger occasions to the countenance renders it a striking exponent of mental character. The lines become fixed in time, and alas! so does the habit, until we hear people complain that they cannot restrain their temper. They can if they like.

There are eyes which need only to look up to touch every chord of a breast choked by the stifling atmosphere of stiff and stagnant society, and to call forth tones which might become the accompanying music of a life. —Jean Paul.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroxyline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN, NOTARY PUBLIC.

COMMISSIONER FOR Nevada, New York, Etc. No. 509 MONTGOMERY STREET. 5v20-3m

GRAY & HAVEN, ATTORNEYS AND COUNSELORS AT LAW. In Building of Pacific Insurance Co., N. E. corner California and Leidesdorf streets, SAN FRANCISCO. 7v16

JOS. THORNHILL, BRICKLAYER AND CONTRACTOR. Particular attention paid to all kinds of Fire Work, such as Rollers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WURTE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

JOHN ROACH, Optician, Has removed from 522 Montgomery street to 610 Washington street, East of Montgomery. Surveying Instruments made, repaired and adjusted 22v17-3m

Farmers and Mechanics BANK OF SAVINGS, No. 235 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate. **H. DUTTON, President.** GEO. M. CONDEE Cashier. 19v16-3m

BARTLING & KIMBALL, BOOK BINDERS, Paper Rulers and Blank Book Manufacturers. 505 Clay street, (southwest cor. Sansome), SAN FRANCISCO. 15v12-3m

SAN FRANCISCO CORDAGE COMPANY.

Manila Rope of all sizes. Also, Balo Rope and Whale Line constantly on hand. Mining Rope of any size and length manufactured to order. **TUBBS & CO., Agents,** 611 and 613 Front street. 26

SAN FRANCISCO MILL. HOBBS, GILMORE & CO., Manufacturers of Boxes, Market Street, bet. Beale and Main. For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN, Manufacturer of PATTERNS and MODELS, (Over W. T. Garratt's Brass Foundry, S. E. Corner of Mission and Fremont sts., 6v1411 SAN FRANCISCO

J. F. PAGES, SEAL ENGRAVER, AND LETTER CUTTER. Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

THE GIANT POWDER COMPANY. BANDMANN, NIELSEN & CO., General Agents, No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN, PIONEER Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET, Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast. MEERSCHAUM MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President. R. N. VAN BRUNT.....Cashier.

BANKING HOUSE, No. 415 CALIFORNIA STREET. 25v20-qy

DR. F. HILLER, Homoeopathic Physician and Surgeon. Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. m84-6m

Eastern Advertisements.

WILLIAM J. YOUNG & SONS, Successors to Wm. J. Young & Co., Wm. J. Young & Son, Wm. J. Young.

MATHEMATICAL AND ENGINEERING INSTRUMENT MANUFACTURERS At their old location No. 43, North Seventh St. Philadelphia Pa.

Have so increased their facilities as to believe they can in future keep a full supply of instruments on hand. Tapes, chains, stationery, draughting instruments and all supplies for field or office. Original manufacturers of Burt's Solar Compass. 4v22

BARBOCK FIRE EXTINGUISHER.

Over 300 Actual Fires put out with it. More than \$4,000,000 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Use cord." **F. W. FARWELL, Sec'y,** 122 Washington st., Chicago. 3v22-3ms

STOUT, MILLS & TEMPLE, PROPRIETORS OF THE GLOBE IRON WORKS, DAYTON, OHIO.

Hydraulic ENGINEERS, Patentees AND Manufacturers

OF THE For cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel, MILL GEARING and SHAFTING Of all Descriptions, and General Mill Furnishing. Water Powers Estimated and Plans Furnished. **A. L. STOUT, W. M. MILLS, J. TEMPLE.** Send for Descriptive Circular. m11-6m

LEONARD'S Patent Vapor Jet Burner and Hand Lamps.

Also, Portable Gas Burners and FIXTURES.

County and State Rights for sale. Send for Circulars. Manufactured and for sale by **D. LEONARD & CO.,** 109 Calhoun Place, Chicago, Illinois. 3v22-3ms

EVERETT HOUSE, Cor. Clark & Van Buren Streets, CHICAGO.

This Hotel is centrally located,

Only Three Minutes walk from the Court House, Post Office, and various places of amusement.

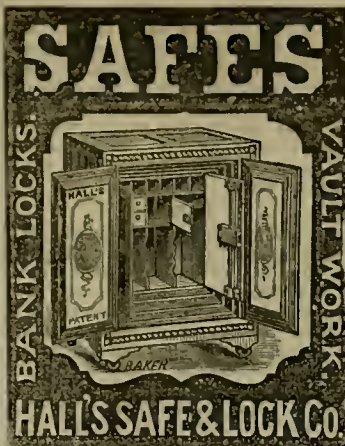
The Chicago, Rock Island and Pacific, and the Michigan Southern Rail

Road Passenger Depots, are within one block. The house is NEATLY and ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City, with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.

BYRON A. BALDWIN & CO., Proprietors. 2v22-4c1ms



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO. CLEVELAND, O. LOUISVILLE, KY.

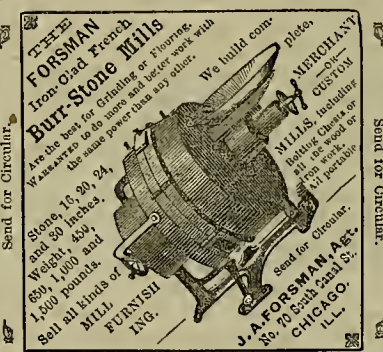
Established 1846.

Claims for our Safes and Locks are:

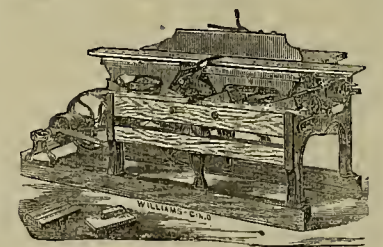
- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Rurglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 20 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices. Send for Catalogue and Prices. m11-6m



Improved Universal Wood Worker



Jointing, Bobbing, Beveling, Panel-Raising, Gaining, Planing out Wind, Smoothing, Floning, Circular Moulding, Cornering,

BORING AND ROUTING, Hand-Matching, Beading, Fluting, Sawing, THICKENING, MAKING, MOULDINGS, Sash, Door and Blind Work, Car Furniture, Etc., Etc.

THE MOST USEFUL, Economical and Labor-Saving Machine of Modern Invention.

Send for Circular, Etc., to **McBETH, BENTEL & MARGEDANT, Manufacturers of Wood Working Machinery, Etc., HAMILTON, OHIO.** m11-6m

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand. 3v22-3ms

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Pass'ger	Express	FEBRUARY 27, 1871.	Express	Pass'ger
Train	Train		Train	Train
except d	Daily.		Daily.	excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
7:56 P.M.	7:20 A.M.	San Jose	5:40 P.M.	
9:35 P.M.	12:10 P.M.	Stockton	1:40 P.M.	8:25 P.M.
	2:10 P.M.	Sacramento	11:1 A.M.	7:00 A.M.
	4:10 P.M.	Marysville	9:10 A.M.	
	8:00 P.M.	Seaside	4:20 A.M.	
	2:30 P.M.	Sacramento	1:15 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	9:10 A.M.	Winnemucca	4:05 A.M.	
	12:00 P.M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:10 P.M.	Ogden	5:15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 50 8:0, 9:1, D 10:20 and D 11:10, a.m. 12:00, 1:50, D 3:00, 4:00, 5:15 6:45 and B 11:30 p.m.
LEAVE BURLINGTON, B 5:15, B 6:30, 7:40, 8:50 and 10:00 a.m., 1:30, 2:40 4:55 and 5:25 p.m.
LEAVE OAKLAND, B 5:25, B 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a.m., 1:40, 2:50, 3:50, 5:05 and 6:35 p.m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7:20, E 9:00, B 9:30 and E 11:30 a.m., 1:30, 4:00 and 5:30 p.m.
LEAVE HAYWARD, B 4:15, B 7:00, E 8:20, B 9:00 and E 11:00 a.m. and 3:25 p.m.
LEAVE ALAMEDA, B 5:15, B 7:36, E 9:06, B 9:36 and E 11:36 a.m., 1:55 and 4:05 p.m.
B Sundays excepted. D To Oakland only. E Sundays only. F To Fruit Vale only.
T. H. GOODMAN, A. N. TOWNE, Gen'l Pass'ger and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



The following time will take effect Saturday, October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).				
New World Leaves S. Francisco	Transit Arrive at Calistoga	Transit Arrive at Sacramento	Transit Arrive at Marysville	Transit Arrive at Yreka
8:30 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.	
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.	

ON SUNDAYS.				
8:30 A. M.	12:30 P. M.	1:10 P. M.	5:00 P. M.	

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).				
Transit Leave Marysville	Transit Leave Calistoga	Transit Leave Sacramento	New World Arrives at S. Francisco	New World Arrives at Yreka
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.	
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.	

ON SUNDAYS.				
6:30 A. M.	8:00 P. M.	2:30 P. M.	7:00 P. M.	

For K. & S. for sale at 515 Min.gomery street, or on board steamer New World. R. S. MATTISON, Superintendent. K. & S. Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf. L. C. FOWLER, General Freight and Passenger Agent, Vallejo October 1, 1870. 13v20-1y

PENNSYLVANIA CENTRAL R. R.

Pittsburgh, Fort Wayne and Chicago R. R.

61 Miles the shortest line From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago to Pittsburgh, Harrisburg, Philadelphia and New York.

WITHOUT CHANGE! With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city. Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburg, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE. Through Tickets via, this gr at short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburg, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, 4v22-1y San Francisco, Cal.

AGENTS WANTED.

A Magnificent Volume! INTERESTING! NEW! RELIABLE!

incident and adventure. History, Fact and Humor. CURE WITH PEN AND PENCIL.

About 600 octavo pages, 20 beautiful Cuts! 13 illustrations in all, engraved expressly for this work, in the best style, embracing every variety of subject and presenting

A Complete Panorama of the Island. Many humorous illustrations are introduced to correspond with the many witty and laughable scenes, incidents, descriptions &c., with which the volume abounds. New style elegant binding. Any one desiring to act as agent, will please apply at once for a circular containing table of contents, and sample of illustrations. Address, F. DEWING & CO., m11-1m 542 California St., San Francisco.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco 2v21-1f

Silk Culture in Utah.

The people in this Territory are becoming fully alive to the importance of the general introduction of silk culture as one of the best and most profitable industries of the country. Brigham Young is already quite an extensive producer of silk. Other parties are also engaged in the business, and all seem to have been uniformly successful. A gentleman writing from Spanish Fork, in that Territory, says:—"I have propagated the same worms for four years, and every worm spins. I have never seen any symptoms of disease among them."

We have received a sample of the cocoons raised by him, and should pronounce them of a good quality. The variety of cocoons cultivated is the same as is mostly cultivated in Asia Minor. The cocoon is of an oval or egg shape, pointed at both ends. There is much less gum or glue in this cocoon than in that of the French and most of the Japanese varieties, and hence the silk is more easily wound off or reeled.

Another correspondent from Salt Lake City says:—"I am fully convinced that this country is one of the best for producing eggs and silk. Our bench lands are remarkably good for fruits of most all kinds."

A writer in the *Deseret Evening News* calls attention to this subject and says: "With the sole view to promote the prosperity of the industrious and worthy pioneers of the Great West, I beg to furnish them, through your paper, a few valuable extracts from a most excellent elementary work, of 33 pages, on *Silk Culture*, from the pen of I. N. Hoag, Esq., editor *Pacific Rural Press*, and an extensive silk and mulberry culturist of Sacramento, Cal. Our dry climate and fruit-tree-growing soils are like those of Northern California, pre-eminently suited for the culture of silk and the production of marketable silkworm eggs, and in view of the enormous profits—the easy culture and easy facilities to transport to ready-cash markets the eggs and silk, I earnestly hope our people, in imitation of President Young, will engage in this lucrative business without further delay."

Thousands of mulberry trees and cuttings for silk culture are being shipped to Salt Lake from this State. The streets of Salt Lake City and the public and private grounds, these are also being ornamented with mulberry trees raised near Sacramento. The people of that city are combining the ornamental with the useful. They intend to clothe themselves with silk produced from the same trees that ornament their grounds and afford them protection from the sun. We hope success may attend their efforts in this worthy enterprise and we have no doubt of it.

Silk Culture in the Mining Counties.

A correspondent of the *Sacramento Union*, writing from Nevada city, takes the following very correct view of the culture of silk in the foot-hills and especially in that county:—

One of the hopeful indications of prosperity in the future is to be found in the attention now being paid to sericulture throughout the State generally and in this county especially. This subject has of late excited a deal of discussion among the shapers of public opinion. It is one of peculiar interest to the residents of the mining section, as it is generally conceded that the valleys cannot compete with the mountains in this respect—all the circumstances being favorable to the production of a superior quality of silk at the least expense in the latter locality. In the presence of existing facts, it is difficult to see where the opponents of the silk culture find there material on which to found their opposition. There can be no doubt of its success in this State. The question "will it pay?" has already been successfully answered. Those who pronounce it a failure should remember that they must prove either that silk can not be successfully produced, or that there

will be no market for it. As to the first, it has been already proved beyond a doubt that in no part of the world can the finest quality of silk be produced more readily than in our California mountains. As to the latter, perhaps some of the gentlemen who have no faith in silk will be kind enough to inform the public when the demand for it is likely to cease or grow less. With regard to the culture in this county let me cite a few

Items.

There are in this county at present, at the lowest estimate, in nurseries and plantations, over 100,000 mulberry trees. In this city and immediate vicinity some half a dozen different parties are engaged in the business. Among these are Ed. Muller, with a plantation of 6,000 trees and about 50,000 in nurseries; A. Isoard with a plantation of 6,000 or 7,000, and C. L. Dimon with a plantation situated between this place and Grass Valley of about 10,000. There are other plantations in this city and Grass Valley and in different parts of the county which will easily swell the figures to the amount stated. Many more already existing in contemplation will soon become substantial realities. The many testimonials as to the quality of the silk produced here, from those most conversant in such matters in quarters where sericulture is best understood, shows conclusively that it is nowhere excelled. Muller and Isoard were the pioneers of sericulture in this county, and it is especially owing to the perseverance and earnestness of the former gentleman that its success in this State has been assured. One of the important considerations of sericulture is, that it opens a new field for the profitable employment of women and children. Look at the girls everywhere growing up through our mountains! It is necessary that many of them should support themselves, but they can't all become schoolma'ams at present—the only manner in which your California girl dreams of obtaining a livelihood. Hence the advantages of a branch of industry which may find them pleasant and profitable employment.

Domestic Sugar Culture.

Though the Alvarado Sugarie has proved so successful, and some movements are recorded at Sacramento and San José, nothing seems likely to be done this year, beyond Alvarado, except raising beets for next year's seeding. We regret to learn that Mr. Wadsworth's efforts to secure the subscription of a capital of \$25,000 for putting up works to make sugar from watermelons have thus far been unsuccessful; but it is not yet too late to initiate the enterprise. The undertaking has no risk, because if only syrup he made, its delicious flavor will secure an eager market, as in Italy. It requires only very simple works, such as can be put up in two months; and by additions, beets can be added next year, for the sugar of each is alike when refined. There is very great economy in the co-working of beets and melons. Between them the sugarie can be kept in work the year round; and melon refuse makes a palatable variation in the feed of stock.

Beets give no syrup for family use, while melons will supply any demand that may be made. There is no oil from the olive which is more tasteful than the table oil made from melon seed. We commend this enterprise to our friends; and we trust that Mr. Wadsworth will yet succeed in forming the company.

VITALITY OF REDWOOD TREES.—Redwood forests, says Mr. Bolander, are not destroyed by fire, which may burn up all the leaves and branches, but the tree will send forth new shoots from its charred trunk and limbs. Trees which have been cut down and allowed to remain on the ground, have formed, after a few years, new growths of young trees, which have grown into forests; anything left of a redwood tree will sprout again; it is therefore a difficult task to clear land overgrown with this timber. This tree is now largely cultivated by the Italian government on account of its many good qualities.

E. S. RITCHIE, of Boston, has lately made the most powerful induction coil now existing.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office.

ALVARADO, March 13, 1871.
MESSRS. DEWEY & Co.,—Gentlemen: I am happy to acknowledge the receipt of my letters patent on Mop Holder. I am entirely satisfied with the manner in which you conducted my case. I can assure you that I shall not fail to recommend your method of business to all others having patents to obtain. Yours, etc., JNO. BRIZEE.

PERSONAL.—Wm. H. Murray, representing the SCIENTIFIC PRESS, of San Francisco, California, called on us this week. He is visiting the principal manufacturing points in the United States in the interests of said journal. The Press is a fine looking sheet, same size as the *Scientific American*, and is now in its 22d volume.—*Iron World*, Pittsburgh.

1000 Farms

In Los Angeles County,
For Cotton, Wheat, Corn, Grapes, Oranges, etc. The "Ahe! Staurus Ranch," 200 square miles in sections, quarter sections, etc., on Government system of survey, forming blocks one mile square, with road on each side, fronting on the ocean, the railroad to San Francisco to pass through them, the unsold portions subdivided, for sale on long credit, or rent. The famous Anaheim is on this tract. For Maps, Circulars, etc., apply to E. F. NORTHAM, 432 Montgomery st., San Francisco, or TIMO, LYNCH, at Anaheim and Los Angeles. 1v22-5ms

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

FOUR MONTHS' SUBSCRIPTION for \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

SALT LAKE CITY.—Chan, Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MULLER'S BRAZILIAN SPECTACLES are just the things for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses.

The Illustrated Excelsior Magazine

Has been reduced from \$2.50 to \$1.00, and is now one of the CHEAPEST in the world. The illustrations alone are perhaps worth more than the cost, and the beautiful STEEL ENGRAVING of Evangeline (postage, etc., being sent) is given. Size of paper on which the steel engraving is printed is 2 feet by 19 inches. The Magazine contains Stories, Pictures, Puzzles, Music, a Lady's Department, with illustrations of ladies' patterns; a Youth's Department, etc., etc. I hereby specially offer the Magazine for One Year also this splendid steel Engraving, for the regular subscription price, \$1.00 and 8 cents for postage and packing of engraving on rollers. Sample copy 10 cents. Address the Publisher, C. L. VAN ALLEN, 171 Broadway, New York. ma25-4f

LEA & PERRINS' WORCESTERSHIRE SAUCE.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle. Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, and by which the Proprietors, Worcester, Crossed, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-1yeow

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$2.50
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.
GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. CONGDON, Secretary. apl-3m.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fcl8-16p-4f

A NEW ARTICLE.

Composition Pipe for Conducting Water.

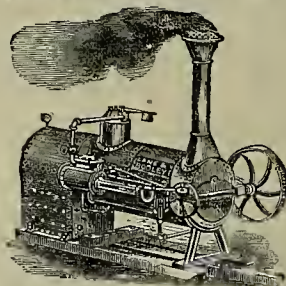
The attention of Railroad Companies, farmers, dairymen and others, is called to our new Pipe for leading water. It is lighter than ordinary lead pipe, and much cheaper than iron, will stand a heavy pressure, and deliver about one third more water than iron pipe, provided the sizes are the same.
We are now manufacturing all sizes, from half-inch to two-inch, and can fill large orders at short notice and put on reels for shipment, the same as lead pipe. Samples can be seen at our office.

No. 116 California Street,

THOS. H. SELBY & CO.

apl-1m

LANE & BODLEY'S



PORTABLE STEAM ENGINES.

From eight to twenty-five horse power, adapted to Farm, Plantation, Saw and Grist Mill use. OUR PORTABLE ENGINES excel in having capacious wrought iron Steam Domes, with Man Head giving free access to the boiler, wrought iron Smoke Head, Lift and Force Pump, and for beauty of design and efficiency.

Also, Stationary Engines, Boilers, Saw Mills, Shafting and Wood-working Machinery.

AGENTS. Catalogues furnished on application.
W. L. Cushing, New Orleans; John P. Dale, Nashville, Tenn.; C. S. Warner & Son, Detroit; LANE & BODLEY, John & Water St. Cincinnati, O.

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE RANSOM PATENTS, the most perfect SANDSTONE, specimens of which may be seen in the ornamentation of Dr. Stone's Church, now in course of erection, at the corner of Post and Mason streets. For architectural, ornamental and mechanical purposes, this stone surpasses all natural stone of its class.

SANDSTONES from this factory, which we make of any desired size, may be seen at many of the great mechanical shops in this city, where they are held in high esteem.

The factory is now turning out Architectural Stone, Cemetery Stone, Grindstones, Garden Ornaments, in the way of Vases, Fountains, etc. The nature of the art admits of our moulding the stone in any desirable form, and enables us to compete successfully with all natural stone wrought by hand. In England, where the stone has been manufactured largely for the past fifteen years, it is considered for durability and strength, to surpass the best English Sandstone. The British Government employs it largely in its public buildings, both at home and in its Colonies; and as we have secured the services of MR. ERNEST L. RANSOM, late Superintendent of the home works at Greenwich, England, we are turning out stone fully equal to the English standard.

For particulars, apply at the Factory, corner Turk and Larkin streets. mal8-4f.

Phelps' Patent Animal Trap,

FOR GOPHERS, SQUIRRELS, RATS, CAYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer,

D. V. PHELPS,
San Leandro, Alameda County, Cal.

sl1-yawbp

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 513 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MAIRS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)
**Assayer and Metallurgical
CHEMIST,**
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint),
SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO., COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS,
4v16-3m

Richardson & Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v21-lys

LOUIS FALKENAU, STATE ASSAYER, Analytical and Consulting Chemist, 421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Completes Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.
Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 and 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? ma18-3m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone
Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOUR-
ING and Stock Feed, Bolts, Smut-
ters, Corn Shellers, Flour Pack-
ers, Hominy Mills, Belting, Picks
and Mill Work generally.
SEND FOR DESCRIPTIVE PAM-
PHLET.



ISAAC STRAUB & CO.,
Cincinnati, Ohio.

Established 1843.

**LOUIS ESPENSCHIED,
WAGON MANUFACTORY,**
No. 1816 Broadway, St. Louis, Missouri.
3v22-6ms

E. J. FRASER, M. D.,

No 108 Stockton Street, S. F., Cal.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.



JOHN WRIGHT,

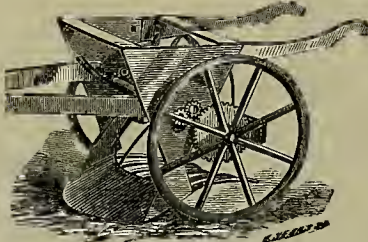
MANUFACTURER OF ALL KINDS OF

MINERS' AND RAILROAD PICKS,

All Adze-Eyes, of Superior Quality.

13 AND 15 FREMONT STREET, AT NELSON & DOBLE'S, SAN FRANCISCO.

Westfall's Improved Potato Digger.



We ask special attention to this practical and useful invention. Nearly every farmer has felt the want of a machine to dig potatoes. This new invention fully supplies that want. The machine being made entirely of iron and steel, will last longer than the farmer who buys it. It is operated by a man and one or two horses, and digs one row at a time. The shovel part of the digger enters under the potatoes and raises them on to the fingers in the rear, where the dirt falls through and the potatoes roll back on to the surface of the ground. The machine is prevented from clogging by a reel which revolves above the fingers and carries through the potato vines, weeds, etc. A complete model can be seen in our office. Full particulars in regard to Machines or Rights furnished on application.

P. Davis' Wire and Picket Fence.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific Coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application.

A few good traveling agents wanted to sell this and other valuable patents.

Hunter's Improved Grain Separator.

The best machine to Clean Grain in the world. Prices reduced. Send for descriptive circular and price list. County Rights for sale.

For Sale.

We have for sale the right to the Pacific Coast for the safest, cheapest, most compact and simple Engine and Hoisting Machinery for mining and other purposes ever invented. Although new, it has been thoroughly tested, and we have strong testimonials in its favor from many of the most substantial men of the East.
We invite manufacturers and others to call at our office and make their own investigations.

New England Spring Bed.

The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

Tarbox's Combination Stencil Alphabet.

By the use of this ingenious device, ANY NAME OR NUMBER can be marked well and perfectly, thus saving the necessity of having a number of different plates. The exclusive right to sell said invention in California, and also a small stock of Plates, for sale at a low price. Send for Circular, or call and examine the Plates.

Nut Roaster.

This machine will roast one quart or half a bushel of nuts at once. All that is required is to wind it up and fill with nuts. It roasts evenly and perfectly and will keep nuts warm a whole day and not burn them. The Patent Right to any town or city in the States of California and Oregon, and Washington Territory.
A sample machine furnished to each purchaser. apl-tf-r

Chlorination and Concentration.

The subscriber is prepared to erect chlorination works at mine on a scale adequate to the wants of the mine, for working daily one-fourth, one-half or one ton of sulphur etc. Will cost \$500 to \$1,000 in complete working order. Will erect and run them until compensation is received from the sulphurets worked, allowing \$6 to 90 per cent. of fire assay value, less ordinary cost per ton for working. Will also erect concentrating machinery simple, efficient and inexpensive.
Also, erect cheap and efficient stamp mills suitable for prospectors. Have one which has been running four months, of three stamps, costing less than \$600.

O. W. EASTON,
apl-1t 316 Montgomery street, San Francisco.

CO-OPERATIVE UNION

Grocery and Provision Store

Removed to 722 Market street, bet. Kearny and Dupont,
SAN FRANCISCO.
apl-tf

CAUTION.

BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETT'S being the original inventor and Sole Maker in the United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Eagle Quicksilver Mining Company—

Location of works, Santa Barbara County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of February, 1871, an assessment of twenty (\$20) dollars per share was levied upon the mines of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Tuesday, the 4th day of April, 1871, shall be deemed delinquent, and will be duly advertised April the 8th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of April, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, W. M. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. fl1-2w

Mountain City Mining Company—Location

of mine, Cope District, Elko county, State of Nevada.
Notice.—There are delinquent upon the following described Stock, on account of assessment levied on the Eighteenth day of February, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Best, John T.....	61	400	100 00
Euright, John T.....	63	250	62 50
Oreok, H J.....	42	100	25 00
Hohron, W M C.....	28	50	12 50
Hohron, W M C.....	24	10	2 50
Hohron, W M C.....	25	10	2 50
Hohron, W M C.....	26	10	2 50
Read, Francis.....	62	400	100 00
Strong, Harvey.....	28	125	31 25
Sharp, Wm H.....	67	900	225 00
Titus, H W.....	49	400	100 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of January, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-room of Maurice Dors & Co., No. 327 Montgomery street, San Francisco, on the 17th day of April, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 206 Front street, San Francisco. apl-2w

Marble Falls Mining Company.—Location

of Works; Mammoth District, Nye County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of March, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 4, No. 405 Front street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 22nd day of May, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, JAS. N. SUYDAM, Secretary.

Office, Room No. 4, No. 405 Front street, San Francisco, California. apl-1w

North America Consolidated Mining Com-

pany.—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice.—There are delinquent upon the following described Stock, on account of Assessment levied on the 15th day of February, A. D. 1871, (also amount due by original owners on rescinded stock) the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A F Collins.....	16	666	33 30
A F Collins.....	40	166	16 60
Thos. Cassin.....	61	166	16 60
W Eruson.....	14	666	33 30
W Eruson.....	42	166	16 60
H C Hemmings.....	19	666	33 30
W J Hemmings.....	43	166	16 60
P F Mohrhardt.....	44	166	16 60
S Pinkham.....	20	666	33 30
S Pinkham.....	45	166	16 60
Geo R Spinney.....	12	666	33 30
Geo R Spinney.....	46	166	16 60
I A Steele.....	49	166	16 60
W J Taylor.....	48	166	16 60
A F White.....	4	1000	50 00
A F White.....	38	250	25 00
Thos Wells.....	6	1000	50 00
Thos Wells.....	39	250	25 00
W E Wood.....	50	166	16 60

And in accordance with law, and an order of the Board of Trustees, made on the fifteenth day of February, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the company, Room 6, No. 302 Montgomery Street, San Francisco, California, on Thursday, the 27th day of April, A. D. 1871, at the hour of 2 P. M. of said day, to pay said delinquent Assessments thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. apr-1

Silver Sprout Mining Company---Location

of Works and Mines, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of March, 1871, an assessment of \$2.50 per share was levied upon the capital stock of said company, payable immediately, either in United States gold coin, or stock in the company, at the rate of \$12.50 per share in like gold coin, to the Secretary, at the office of the company, No. 206 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 1st day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, T. B. WINGARD, Secretary.

Office, No. 206 Front street, San Francisco, Cal. ma25

Taylor Mill and Mining Company—Location

of works, Georgetown District, El Dorado county, State of California.

Notice.—There are delinquent upon the following described Stock, on account of assessment levied on the Thirty-first day of January, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. of Certif.	No. Shares.	Amount.
H H Bailly.....	21	10	6 00
W T Gibbs (unissued).....	14	1,000 bal. due	174 19

And in accordance with law and an order of the Board of Trustees, made on the 31st day of January, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 520 Montgomery street, San Francisco, California, on the 5th day of April, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

SAMUEL S. MURFEY, Secretary.
Office, 520 Montgomery street, San Francisco. m18

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m

GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qy**UNION IRON WORKS,**
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Ounbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders

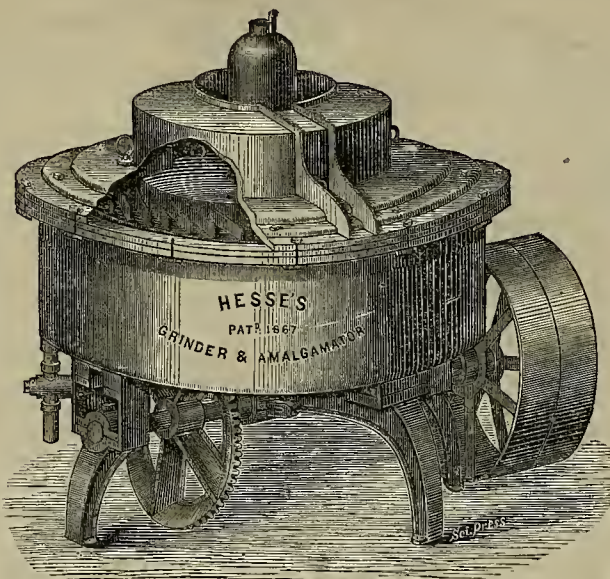
And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERRECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf**California File Manuf'g Co.**437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMERREAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-qy

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

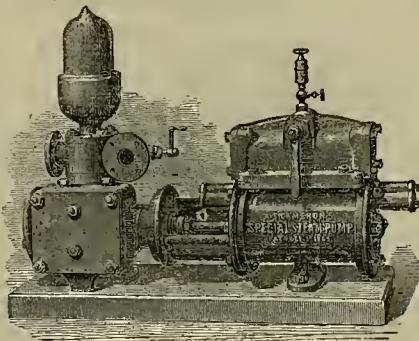
IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

fell-tf

LORD & PETERS,

304 Battery street, San Francisco, Cal.

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.GIFFARD'S
INJECTORS.BARTOL'S
STEAM TRAP.
Surface Condensers.DAVID STODDART,
114 BEALE STREET, S. F.

VULCAN IRON WORKS.

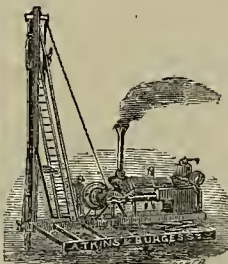
Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

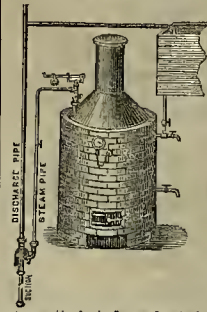
MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILLGEARING AND
GENERAL MACHINERY
CASTINGS
MADE TO ORDER.

Jobbing Promptly Attended to. 3v22-3m

**PACIFIC**
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting,
Embracing ALL SIZES ofSteamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames
—ALSO—
HAMMERED IRON
Of every description and size.Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention.
The highest price paid for Scrap Iron 9v143mRUSS PATENT
MONITOR MOLDING MACHINE,
MADE BY

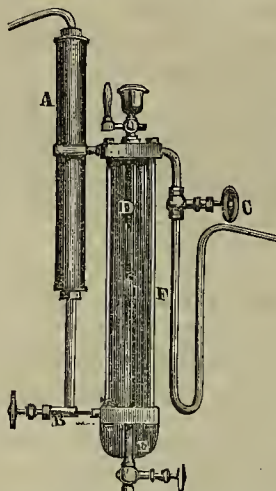
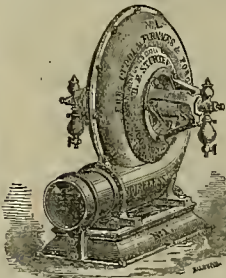
R. BALL & CO., Worcester, Mass.,

Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Facto-
ries, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly**STEAM JET PUMP.**
Blakslée & Williams' Patent.—For
Water, Oils, Acids, Etc.The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
bolts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of an engine; it will not choke
up with four water; cost much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
isco; KEET & BARGION, Stockton. Can be seen at
McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-tf

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D is a glass chamber which contains
the lubricant. C is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F is the discharge
pipe for the lubricant, provided with an inverted syphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the election
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. fel8-tf

STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,
San Francisco,
who have the differ-
ent sizes always in
store. 4v22

The Stetefeldt Furnace.

For information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Conne-
tions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED V. KINGWELLSEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Spe-
cial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 313
CALIFORNIA STREET, San Francisco. 25v20-3mTHOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
streets, San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

**GEO. T. PRACY'S
MACHINE WORKS,**
109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF
**PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.**

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR
L. W. POND'S CELEBRATED TOOLS.

— SUCH AS —
Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
**MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.**

MANUFACTURER OF
Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, Market, San Francisco.
10v14q

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents, **BERRY & PLACE,**
112 and 114 California street, San Francisco.

For
Steam Pipes
& Boilers
Saves 25 per cent. For Sale by **BERRY & PLACE,**
4v22 112 California street, San Francisco.

Varney's Patent Amalgamator.
These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Selfies made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

Gold Saving Amalgamated Plates.
Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works.
655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.
HAYLAND, HOOPER & CO., Agents, No. 335 Pine St.

Best means yet discovered for saving fine particles
of Gold. 20v21-4f

DARLING & CO.,
Importers, General Agents and Commission Merchants.
Machinery, Merchandize and Supplies of every description Purchased and Sold on
Commission,
AT LOWEST RATES.



General Agents for the
**NATHAN & DREYFUS
SELF OILERS.**

These Oil Cups are too well known
to require any lengthy description;
the following are the main points
of advantage.

We guarantee a saving of
75 PER CENT OF OIL.

They are composed of a transpa-
rent Glass Cup, mounted in Brass,
provided with a hollow tube, inside
of which is placed a loose acting
solid or hollow wire, which acts as
a Feeder and Regulator. The wire
rests constantly upon the Journal,
thereby acting with the bearing in
its motion. The wire is so regu-
lated inside the tube as to feed ac-
cording to the demand only. There
is no flow of oil whatever while the
machinery is not in motion.

They are as reliable in Winter as in Summer.
Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' con-
stant use.
They are constructed in a very neat and substantial manner.
We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give
perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position
or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you
desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal
that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed
NATHAN & DREYFUS, New York, Jan. 1st., 1871.

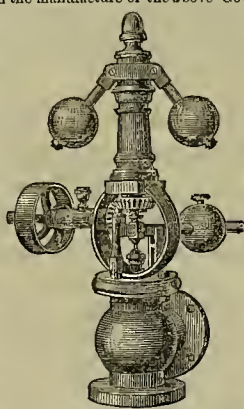
**WE ARE ALSO GENERAL AGENTS FOR THE
GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.**

After an experience of eleven years in the manufacture of the above Governor, during which time several im-
portant improvements have been made
and two additional patents obtained
we feel justified in recommending it
to all parties using Steam power, and
warranting it to be the most perfect
regulator in the market.

The Gardner Governor is so well
known that we think it unnecessary to
enter into a detailed explanation of the
principles involved, or details in its
construction, merely giving the leading
objects realized by this important in-
vention. The Governor combines with
the greatest simplicity of construction,
accurate regulation of speed, pos-
itive insurance against all accidents
liable to occur from shipping or parting
the Governor or driving belts, and a
convenient arrangement for adjusting
the speed of the Engine while in mo-
tion, without change of pulleys.

The construction of the Governor is
extremely simple, having no springs,
inside joints, swivels or parts liable to
disarrangement, all the several parts
are duplicates of each other in the same
series; the most skillful workmen are
employed, the best material used and
the machinery employed especially
adapted to their manufacture. Thus

we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheer-
fully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.
When ordering, be particular to say Governor with THROTTLE VALVE on WITHOUT THROTTLE VALVE; and either
BLACK OR FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup
to the public, we desire to call
very particular attention to its
many special advantages.

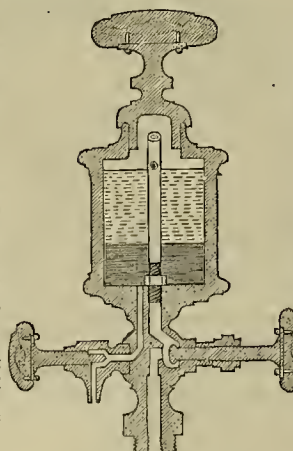
FIRST.—Nothing but clean oil or
tallow is admitted into the Cylin-
der; no lime or sediment of any
kind.

SECOND.—Its great economy of
both tallow and fuel.

THIRD.—It is self-acting, and
supplies the lubricating material
only while the Engine is in
motion.

FOURTH.—Its certainty and regu-
larity of feeding, and increase of
the power of the Engine.

The principle upon which this
apparatus is founded is that, in-
stead of admitting tallow into the
Cylinder in considerable quantities
at uncertain intervals by means of
tallow cups, grease cups, and other
crude contrivances, and allowing
it to be instantly blown out at
the exhaust (as must necessarily
be the case), this cup, by its pecu-
liar action, delivers the lubricant



in drops into the body of the
steam, which thereby becomes
thoroughly impregnated or greased
before passing into the steam chest
or Cylinder; the consequence is,
that instead of falling to the bot-
tom of the Cylinder, as it does
when admitted through a tallow
cup (which passes the lubricant
from the bottom of the cup to the
Cylinder), it enters into the form
of minute globules, and hence the
whole of the internal parts of the
engine become regularly and con-
stantly greased. The result of its
action has been proved in a very
great number of cases to be an
enormous saving of tallow, a con-
siderable increase in the power of
the engine, a great saving in fuel,
and reduction of internal friction
to a minimum.

These Lubricators will save you
15 per cent. of the Lubricating
Material, and cost no more than
the common Compression Cups.

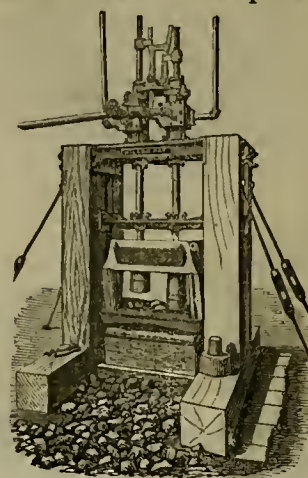
The above Goods are Sold at
Factory Rates.

For Price Lists or information address **DARLING & Co., 629, Washington Street,**
San Francisco, California.

Traveling Agent—**R. K. COLCORD.**

5v22eow-6m

**THE WILSON
Patent Steam Stamp Mill.**



This extraordinary Mill, now so justly popular in the
East, is now offered to the miners of the Pacific Coast.
Having been in operation now for about two and a
half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill
that has had the severe ordeal of practical working, and
proved itself eminently successful. It is now in opera-
tion in several of the Eastern States and Territories, and
gaining an envious popularity. The whole machine is
so simple as to be readily understood by the most ordi-
nary minds. In fact, its simplicity is its durability.
The expense of crushing rock or cement with this Mill
is less than one-half the expense of any other Stamp
Mill, and less than one-half the cost. For further par-
ticulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of **THE WILSON STEAM STAMP MILL CO., 326**
Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manu-
facture or use any Steam Stamp Mills that are an in-
fringement on the Wilson Patents, as they will be
prosecuted to the utmost rigor of the law.
F. R. WILSON,
20v19-4f Supt. W. P. S. S. M. Co., Philadelphia.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch
Anchor brand Bolt-
ing Gladiis, Smit
Machines, Bran
Dusters, Mill Picks;
Mill Picks dressed;
Mill stones repaired
rebuilt and bal-
anced.

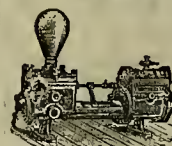
MANUFACTURERS OF

French Burr Mill
Stones, Portable
Mills of all sizes,
from 16 to 36 inches, for grinding Corn, Barley, Feed,
Salt, Fruits, Drugs, &c. Mills specially adapted for
grinding Quartz.

2v22-1yins 41 First st., San Francisco.

The Angel's Quartz Mine

Shaft is over 400 Feet Deep,
and is kept free from water
in its lowest level by the



BLAKE STEAM PUMP

Sold by **BERRY & PLACE,**
112 California st., San Fran-
cisco. 4v22

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

**SPORTING,
MINING,
And BLA-TING
POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is there-
fore superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the **MECHANICS' INSTITUTE** and the **STATE AG-
RICULTURAL SOCIETY** for the superiority of our
products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the **BEST BLASTING
POWDER**, thus making it vastly superior to any other
compound now in use.

A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m **JOHN F. LOESE, Secretary.**

Dewey & Co., U. S. and Foreign Patent Solicitors and Counsellors, Scientific Press Office. Principal Agency in the Pacific States. Established 1860.

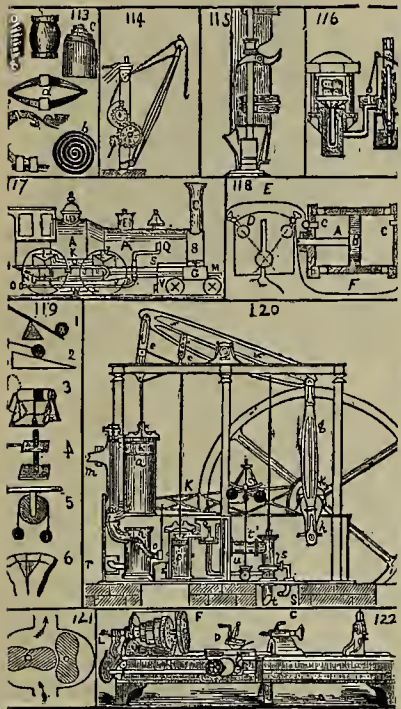


Plate V of Illustrated Mechanical Movements, described in Dewey & Co.'s 49 page circular of Information for Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

DEWEY & CO., Patent Agents, No. 414 Clay st., San Francisco.

BAIRD'S BOOKS

FOR PRACTICAL MEN.

My new and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, 82 pages, 8vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD, Industrial Publisher, 406 Walnut St., PHILADELPHIA.

OCCIDENTAL Insurance Company OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President. B. ROTHSCHILD, Secretary. 20v17



Sonora Hotel, T. BRODIGAN,.....Proprietor Best Meals and Beds in Sonora, Cal. fe25-3m

WIESTER & CO.,

No. 17 New Montgomery Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Longshores Combination Tool.



town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Hay Press.

The best and cheapest hay press in the United States. Presses furnished at manufacturer cost to parties buying County or State Rights. The profits on a few Pressee will pay for a county Right.

New England Spring Bed.

The cheapest and best in the market. Rights for sale and beds at cost. Send for descriptive circular.

Tarbox's Combination Stencil Alphabet.

By the use of this ingenious device, ANY NAME OR NUMBER can be marked well and perfectly, thus saving the necessity of having a number of different plates. The exclusive right to sell said invention in California, and also a small stock of Plates, for sale at a low price. Send for Circular, or call and examine the Plates.

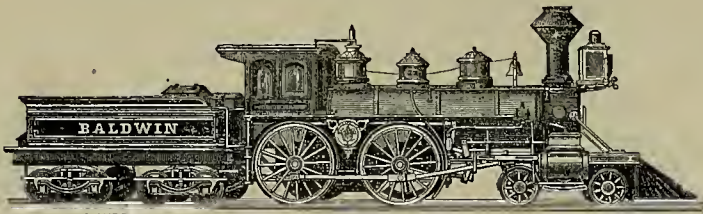
A Local Agent Wanted

In every town on the Pacific Coast to sell Valuable Small Inventions.

WIESTER & CO.,

17 New Montgomery Street, (Grand Hotel), San Francisco.

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

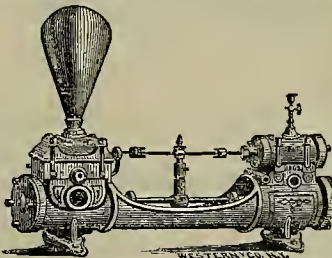
Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WM. P. HENSZEY, GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH. WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal. npl-cow13t

A. L. FISH, Agent, KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

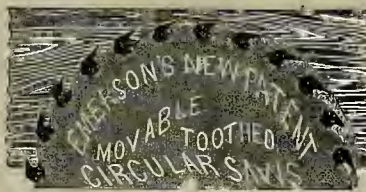
CONSTRUCTED BY DAVID R. SMITH, Civil and Mechanical Engineer, 519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-1f-16p

C. J. KING, B. KIMSALL, P. D. CODE. P. D. CODE & CO., MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES, Canned Fruits and Vegetables of superior quality. 621 and 623 Front Street, Between Jackson and Pacific, San Francisco. [18p

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BAO. & Co. and LIPPENCOTT & Co. Also, SHOVELS, AXES and SPADES. All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address HUBBARD, LIPPENCOTT, BAKEWELL & CO., mail-16p-1f Pittsburgh, Pa.

MAGAZINES.	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godsey's.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	
Peterson's.....	3 00
Arthur.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
London Ill. News.....	15 00

W. E. LOOMIS, News Dealer AND STATIONER, S. E. corner of Sansome and Washington streets, SUPPLIES ALL Eastern Periodicals, BY THE Year, Month, or Number.

W. T. GARRATT & CO.

CITY Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells, TAVERN AND HAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1f W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,

Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco. Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

Pacific Insurance Company, No. 222 California St., San Francisco. Cash Assets \$1,750,000. Fire and Marine Insurance.

J. HUNT, President. WM. ALVORD, Vice-President. A. J. RALSTON, Secretary. A. BAIRD, Marine Secretary.

RIDER'S

Automatic Cut-off

Vertical Engines

Manufactured by the

Albany St. Iron Works,

NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p



PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes. H. M. RAYMOND, 25 Bond street, New York. Platinum Scrap and Ore purchased. 6v20-1y16p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

H. DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 8, 1871.

VOLUME XXII.
Number 14.

Another Shake—A Suggestion.

Last Sunday, the earthquake returned from its trip to the East, and favored us with a couple of shakes which did no further injury than to frighten a number of people. The shocks were felt more severely on the other side of the Bay, it is stated, and were experienced along the peninsula south; and also to the north.

We have for several years tried to make up a tabular form of the times at which the various shocks have been felt in different places, so as to determine the center of disturbance, the rate at which the shocks travel, etc. But this is impossible on account of the great variation in the times as given. We think that it would be an excellent idea to have the times of various localities corrected to a standard by telegraph, which can easily be done, and thus we might be able to deduce many facts of interest and importance on the subject. There is no country subject to the shocks which has such telegraphic advantages as we have, and it is a pity that California should not benefit by its opportunities to teach the world something in this respect. We commend the matter to the consideration of intelligent men on the coast.

S. F. ART ASSOCIATION.—This new association is rapidly getting under way. A special meeting is called for Tuesday, the 11th inst, at 7 P. M., to be held in a room adjoining the library of the Mercantile Library Association, for the election of members and other business. A full attendance is requested. All lovers and patrons of art desiring membership should send in their names to any one of the members or officers of the Association, or, if not personally acquainted with them, to the Secretary, Frederick Whympier, room 11, Donahoe's building.

CALIFORNIA PACIFIC RAILROAD.—The steamers recently purchased by this company, commenced running under the new management on the 1st inst. The time table shows no change. The *Chrysopolis* and *Yosemite* are on the Sacramento route; and the *Amador* and *Julia* on the Stockton route. The rates of fare to Sacramento and Stockton will be \$1 50 for cabin and \$1 for deck passage, and to Benicia and Suisun, \$1. Rates for freight have been fixed as follows: To Sacramento, \$2 50; to destination for interior points, \$2; Knight's Landing, \$3; Colusa, \$5; Tehama, \$9; Red Bluff, \$12; Stockton, \$2 per ton.

PLOWING IN THE MOUNTAINS.—The *Alpine Chronicle* says: "Our farmers are all busy plowing and putting in their crops. If they do not find a home market next fall for all their products, it will not be because our mining prospects at this time do not warrant a belief that their hopes in this particular will be fully realized." The mountain farmers are happily free from the dangers and damage from drouth which lately so seriously threatened the farmers of the great valleys of the interior and Coast Range.

Improved Hay Rake.

Among the late improvements which California has made in agricultural implements, improvements which have an actual importance for all on our coast in that they aid in the production of the country, an improved hay rake, recently patented by Mr. O. Bonney, Jr., of this city, deserves attention.

This rake is designed for gathering hay or gleanings on any ground, and from its construction, it is claimed, will save double the amount of hay on rough land that can be saved by either the old revolving or the wire tooth rake, besides delivering the article in a superior condition. It is, moreover, very easily handled by both man and horse. The illustration gives a good idea of the device, several of the important points of which may here be touched on.



THE BONNEY PATENT IMPROVED HAY RAKE.

The teeth are adjustable, being held in a malleable shank by set nuts, and can be run out as they become worn, two feet being the length generally used. This is an advantage over stationary teeth which, when worn one season, become so short often that their holding capacity is very limited. The teeth, moreover, are double-pointed, so that they can be changed, point for point, giving the advantage of two sets of teeth.

The spring bar, A, held by the steel spring, B, and a thumb-nut, is designed more especially for cocking or bunching hay, but can be used to advantage in raking any ordinary ground. On very rough ground, the bar should be thrown off, which is done quickly by turning off the thumb-nuts, and raising the lower end of the springs. The bars which hold the teeth are changeable in the frame, allowing the required inclination of the teeth to the ground.

The dumping arrangement, connected with the seat, and operated by the driver's weight, allows one to handle the rake with the greatest ease, being connected with the

lifting beam, C, through the changeable link or strap, I, so as to suit the weight of the party driving. The hand lever, O, is thrown under the seat to take the weight of the driver when simply raking, an operation represented in the cut.

There are several other points in the machine for which superiority is claimed. This rake is now in use at Sherman Island and about Rio Vista, raking tules and working in localities where other rakes have been found impractical. It took the first premium at the last State Fair in Sacramento. Patented Nov. 23, 1869, and Jan. 31, 1871.

The manufacturer is Mr. O. Bonney, corner of Mission and Beale streets, San Francisco, whom address for further particulars.

Steam Plow for Tule Lands.

We have seen the drawings of a new steam plow designed by Mr. George L.

Pierce of this city, and would advise those interested in such matters to visit the Miners' Foundry, on First street, and examine the plans. Mr. Pierce is desirous of securing some aid in order to enable him to put a machine on the market. He is a gentleman of large experience as mechanical engineer, has worked for years at his profession, and appears very well informed. We are unable to devote to his invention the space which it deserves, but would desire to call attention to it. We need greatly some machine of the kind, and may have a very effective one in this, which certainly is worth examining.

A CHANCE FOR MINERALOGISTS.—Messrs. Riotte and Luckhardt showed us lately at their Nevada Metallurgical Works, on First street, near Market, (Golden State Foundry,) a couple of cases of a large mineral cabinet which has been placed there for sale. The collection was many beautiful crystals of foreign ^{rs} ^{ers} and also, what is more interesting, the ^{rs} ^{ers} of all the new minerals and of ^{rs} ^{ers} of our coast. The collection was made by a person of extensive mineralogical knowledge and has been judiciously selected, certainly as far as we can judge from the portions shown us. We are told that it will be sold at a very moderate price. Particulars can be obtained by calling at the place or by addressing Mr. Riotte.

ACADEMY OF SCIENCES.—At the meeting, last Monday, Mr. E. Durand presented specimens of chrome ochre and of cinnabar with asphaltum from the New Almaden mines; also a compound of the sulphates of the binoxide and the protoxide of mercury which is found in the condensing chambers of the quicksilver furnace. Remarks on the earthquake, which occurred here last Sunday evening, were made, and there followed rather an unprofitable discussion as to the cause of earthquakes. A species of small crab, found in Half Moon Bay, was presented by Dr. Gibbons. Dr. Cooper was elected Corresponding Secretary *pro tem*.

SAN DOMINGO.—A certain C. C. Fulton has published what is called the basis of the report of the San Domingo Commissioners. According to this, "every question of enquiry can only be answered in the most favorable manner as to people, soil and climate." As the people are of excellent character, according to the "basis," we are at a loss to understand how the land can be "cursed by man." We fear us that Mr. Fulton is an optimist. The people are represented as anxious for annexation. This may be so, although there are reports to the contrary. But we are very doubtful as to what we should gain thereby.

IMPORTANT RAILROAD NEGOTIATIONS.—The report is circulated that negotiations are in progress for the purchase of the S. F. and Northern Pacific Railroad by the Cal. Pacific.

Pierce of this city. It is intended for use on tule lands and has a number of peculiarities which, it is believed, will render it particularly serviceable for its intended purpose. The engine and boiler are made of a peculiar construction, with the purpose of obtaining the minimum of weight with the greatest stability and power. The device is not intended as a locomotive, but is to be drawn by horses, all the power of the engine being devoted to driving the cutters. The revolving cutters are driven by chain gearing. They consist of thin saw-blades mounted on a shaft in such a way as to be stiff while they can easily be replaced when necessary. These cut parallel furrows. Bolted on to these are curved cross-cutters, also of thin metal, arranged so as to cut in a spiral, there being three, or perhaps four, rows of these last. The cutters are driven at a high rate of speed and cannot well clog, while they must apparently chop up the tule into fine pieces. They can be raised or lowered so as to cut as deep or as shallow as may be desired. From the drawings and the description given us, we are disposed to view

MECHANICAL PROGRESS.

TILGHMAN'S STONE CUTTING PROCESS.—

The *Journal of the Franklin Institute* for March says that Mr. B. C. Tilghman of Philadelphia shows that a jet of quartz sand, thrown by means of steam at high pressure, will bore an inch and a half hole through a block of corundum, (nearly as hard as the diamond) an inch and a half thick, in 25 minutes. He has applied the discovery to grinding or depolishing glass for ornamental purposes; using a moderate air-blast, instead of steam,—the spent sand being reconveyed to the upper part of the apparatus, and the resulting dust being drawn back into the fan and again forming part of the sand shower. Ten or fifteen seconds is time enough to completely grind the surface of ordinary glass. By covering parts of the glass surface by a stencil or pattern of any tough or elastic material, such as paper, lace, caoutchouc, or oil paint, designs of any kind may be engraved. There is a kind of colored glass made by having a thin stratum of colored glass melted or "flashed" on one side of an ordinary sheet of clear glass. If a stencil of sufficient toughness is placed on the colored side, and exposed to the sand blast, the pattern can be cut through the colored stratum in from four to twenty minutes, according to its thickness. The theoretical velocity of a current of air of the pressure of 4 inches of water, he calculates, is (neglecting friction) about 135 feet per second; the actual velocity of the sand is doubtless much less. If a current of air of less velocity is used, say about one inch of water, very delicate materials, such as the green leaves of the fern, will resist a stream of fine sand long enough to allow their outlines to be engraved on glass. By graduating the time of exposure with sufficient nicety, so as to allow the thin parts of the leaves to be partly cut through by the sand, while the thicker parts of the ribs and their branches still resist, the effect of a shaded engraving may be produced. The grinding of such a hard substance as glass by an agent which is resisted by such a fragile material as a green leaf, seems at first rather singular. The probable explanation is, that each grain of sand which strikes with its sharp angle on the glass pulverizes an infinitesimal portion which is blown away as dust, while the grains which strike the leaf rebound from its soft elastic surface. The film of bichromatized gelatin, used as a photographic negative, may be sufficiently thick to allow a picture to be engraved on glass by fine sand, driven by a gentle blast of air. For cutting stone the inventor uses steam as the impelling jet; the higher the pressure, the greater is the velocity imparted to the sand, and the more rapid its cutting effect. In using steam of about 100 pounds pressure, the sand is introduced by a central iron tube, about 3-16 inch bore, while the steam is made to issue from an annular passage surrounding the sand tube. A certain amount of suction of air is thus produced, which draws the sand through the sand tube into the steam jet, and both are then driven together through a tube 6 inches long, in which the steam imparts its velocity to the sand, and finally strike on the stone, which is held about an inch distant from the end of the tube. Under favorable conditions, using steam which he estimated as equal to about $1\frac{1}{2}$ horse-power, at a pressure of 125 pounds, the cutting effect per minute was $1\frac{1}{2}$ cubic inches of granite, or 3 cubic inches of marble, or 10 cubic inches of soft brown sand stone. By means of flexible or jointed connecting tubes, the blast pipe is made movable in any direction; grooves and moulding of almost any shape can thus be made, or by means of stencil plates, letters or ornaments can be cut either in relief or intaglio, with great rapidity in the hardest stone. At a high velocity quartz sand will cut substances much harder than itself as before stated. A hole 1 inch long and $\frac{1}{4}$ inch wide was cut through a hard steel file, $\frac{1}{4}$ inch thick, in 10 minutes, with a jet of 100 pounds steam. A stream of small lead shot, driven by 50 pounds steam, wore a small hole in a piece of hard quartz; the shot were found to be only very slightly flattened by the blow, showing their velocity to have been moderate. Among the curious examples of glass cut by this sand blast was shown a piece of ordinary window glass, which, having been partially protected by a covering of wire gauze,

had been cut entirely through, thus producing a glass sieve, with openings of about 1-12th of an inch, the intervening glass meshes being only 1-16th of an inch wide.

IMPROVEMENT IN HEAVY ORDNANCE.—

The following description of Col. Terrell's perforated reinforce gun, for the manufacture of which a joint-stock company is now organizing in Washington, is from the *Scientific American* of March 25th: "The part which contains the bore is a steel cylinder, cast with walls of a uniform thickness of two inches, which secures homogeneity in the casting, and provides against cooling strains and flaws. To receive this steel barrel, an iron reinforce of great thickness is cast, with a caliber a little less than the entire diameter of the barrel. In the walls of the reinforce are eight rows of perforations, having the outlines of truncated cones, disposed in equilateral triangles, the small end of the openings, two inches in diameter, being upon the internal surface of the reinforce. These perforations and the bore are formed by cores, fixed on the flask or pit when the metal is cast. By thus multiplying the cooling surface, the requisite tensile strength may be obtained with less danger of flaws and neutralizing strains, when the mass of metal 'sets,' as all foundrymen know. To receive the steel barrel, the reinforce is expanded by heat. It may be cast in sections, thus saving the great inconvenience attending the handling of the same if cast entire, and, in case of flaws in the casting, involving only the loss of the section in which they occur. The barrel, when inserted, is firmly compressed as the iron cools, but since it is not otherwise secured, its longitudinal expansion, from the heat of discharges, is not so cramped as to cause a rupture. The radial expansion of heat is partly provided for by the elasticity resulting from the internal support received from the reinforce; but in this regard the main reliance is upon the immense radiating surface, penetrating to the very core of the gun, and preventing the accumulation of heat, at the dangerous points within the walls. A gun thus constructed will, it is claimed, stand the rapid and continuous firing of solid shot indefinitely, without danger of bursting. The theory is, that the rapid firing of a thick-walled gun, made after any of the present models, must produce a degree of heat sufficient to cause unequal expansion in the mass of metal, and thus create cracks, or at least, strains that will result in rupture by the pressure of subsequent discharges. The inventor believes that durability can be obtained by providing for the escape of this force, and that his perforated reinforce supplies this provision."

PETROLEUM AS FUEL.—This problem seems in a fair way of solution,—says the *Chicago Mail*. The new apparatus "consists of a cylinder, like a small locomotive boiler set on end, with a smaller cylinder within it, the intervening space being filled with petroleum. The smaller cylinder is filled with six hundred small copper tubes, and through these the superheated steam passes, producing vapor from the oil that fills the interstices between the tubes. This vaporized oil rises through a layer of prepared sponge, and just at the point of exit is mixed with superheated steam in any required proportion, thus producing hydrocarbon gas. This gas passes through iron tubes to the point where the fuel is needed, and is there burned, very much like common gas. In the case which was shown, the kiln was filled with stone, and in a very short time after the fire was lighted the heat was more intense than can be expressed by comparison. All this time the fire was under perfect control, and by a simple turn of a screw the combustion was made more or less intense."

TEST OF THE 35-TON GUN.—This monster has been fired with an elongated shot of 700 lbs. weight. Says the *Mechanics' Magazine*:—"The highest velocity attained, 1,370 feet per second, was produced by 120 lbs. of powder, and this will no doubt be fixed upon as the regular service charge. The new gun has (at the time we write) fired eight rounds of high charges, ranging from 75 lbs. up to 130 lbs. The velocities attained with charges of 75 lbs. and 100 lbs. of powder were respectively 1,160 feet and 1,250 feet, the penetrating power of the projectiles with the latter being so great that an armor-plate of 13 inches in thickness would only just arrest them at close quarters."

SCIENTIFIC PROGRESS.

A CONSTANT FORM OF DANIELL'S BATTERY.

Sir W. Thomson has devised a form of this battery which will last for years—the only limit being the falling to pieces of the zinc. A late number of *Nature*, copies the paper in which he described it to the Royal Society. We give an extract:—"The cell is of glass, in order that the condition of the solutions and metals which it contains may be easily seen at any time. It is simply a cylindrical or rectangular jar with a flat bottom. It need not be more than ten centimetres deep; but it may be much deeper, with advantage in respect to permanence and ease of management, when very small internal resistance is not desired. A disc of thin sheet copper is laid at its bottom. A properly shaped mass of zinc is supported in the upper part of the jar. A glass tube (which for brevity will be called the charging-tube) of a centimetre or more internal diameter, ending in a wide saucer or funnel above, passes through the center of the zinc, and is supported so as to rest with its lower open end about a centimetre above the copper. A glass siphon with cotton-wick core is placed so as to draw liquid gradually from a level about a centimetre and a half above the copper. The jar is then filled with semi-saturated sulphate of zinc solution. A copper wire or stout ribbon of copper coated with india-rubber or gutta percha passes vertically down through the liquid to the copper plate below, to which it is riveted or soldered to secure metallic communication. Another suitable electrode is kept in metallic communication with the zinc above. To put the cell in action, fragments of sulphate of copper, small enough to fall down through the charging tube, are placed in the funnel above. In the course of a very short time the whole liquid below the lower end of the charging tube becomes saturated with sulphate of copper, and the cell is ready for use. It may be kept always ready by occasionally (once a week for instance) pouring in enough of fresh water, or of water quarter saturated with sulphate of zinc at the top of the cell, to replace the liquid drawn off by the siphon from near the bottom. A cover may be advantageously added above, to prevent evaporation. When the cell is much used, so that zinc enough is dissolved, the liquid added above may be pure water; or if large internal resistance is not objected to, the liquid added may be pure water, whether the cell has been much used or not; but after an interval, during which the battery has not been much in use, the liquid added ought to be quarter saturated, or even stronger solution of sulphate of zinc, when it is desired to keep down the internal resistance. It is probable that one or more specific gravity beads kept constantly floating between top and bottom of the heterogeneous fluid will be found a useful adjunct, to guide in judging whether to fill up with pure water or with sulphate of zinc solution. They may be kept in a place convenient for observation by caging them in a vertical glass tube perforated sufficiently to secure equal density in the horizontal layers of liquid to be tested by the floaters. * * * Two or three cells, such as the one shown to the Royal Society, will be amply sufficient to drive a large ordinary turret-clock without a weight; and the expense of maintaining them will be very small in comparison with that of winding the clock."

HECKEL ON ARCHIOGENESIS.—Prof. Hæckel, of Jena, has done more than any other observer,—says "E. R. L." in *Nature* for March 2d,—to establish the Protoplasm theory by his discovery of organisms of the simplest conceivable structure,—that is, not even possessing a differentiated central nucleus,—and his remarks upon the present condition of the Spontaneous Generation question must possess great weight." The following is a quotation from a recent work by him: "Since in our chemical laboratories, with our exceedingly limited and rough methods, we have succeeded in forming many Carbon-compounds, and have good reason to suppose that we may one day synthetically produce albuminoid bodies, it is not reasonable to suppose that in the great laboratory of Nature, similar but more complex chemical synthesis may go on, such as the formation from inorganic materials of albuminoids and of living protoplasm? If we are to call in a special creative act—superior to mere chemical synthesis—to account for the ex-

istence of Protoplasm because we have not succeeded in forming it artificially, so also must we postulate a peculiar creative act for a great variety of minerals, such as feldspar, fluor spar, heavy spar, augite, &c., since we are equally unable to build up these inorganic bodies. In this way we should divide the whole world into a Natural and a Supernatural group. The former would contain such salts, gases, &c., as we can build up in the laboratory, also alcohol, acetic acid, &c. All these bodies have arisen by Archigenesis, i. e., by natural, mechanical means, solely by the interaction of the inherent physical and chemical forces of their matter. The latter group would contain all minerals not yet formed in the laboratory, also all the complex Carbon-compounds. These bodies would be considered as arising by "Creation," that is, by supernatural means, through a means, through a mysterious creative force existing externally to the bodies. To every philosophic naturalist such a view must appear as untenable as is every assumption of a "Creation." On the other hand the assumption of an Archigenesis for the first living beings from which all others have developed, is a logical postulate of the human intelligences."

THE POLARITY OF THE COMPASS PLANT.

In the *American Naturalist* for March, W. F. Whitney gives a brief history of the discussion upon this plant, and Dr. Gray's explanation of the fact that the radical leaves always present their edges north and south. We quote: "In November last, Dr. Gray received a letter from Mr. Charles E. Bessey, of the Iowa State Agricultural School, in which he says: 'We have the curious 'Compass Plant,' *Silphium laciniatum*, growing in great abundance throughout all this region. The polarity of its leaves is very marked. Use is made of it by the settlers when lost on the prairies in dark nights. By feeling the direction of the leaves they easily get their bearings.' From the record of these observers there can be little doubt that the leaves on the prairies do assume a meridional bearing; and the cause assigned for this by Dr. Gray is undoubtedly the correct one, viz.: that both sides of the leaf are equally sensitive to light. It only remains to be shown what renders its two sides thus equally sensitive. It is well known that the two sides of a leaf usually differ in structure, that the number of stomata, or breathing-holes, is much greater on the under than the upper surface; and that the tissue of the upper is denser than that of the lower stratum. As the two surfaces of the *Silphium laciniatum* appeared somewhat alike, Dr. Gray suggested that it would be well to examine the leaf microscopically in order to see if it corresponded with ordinary leaves in the above respects, or with truly vertical leaves, the two surfaces of which are usually similar or nearly so; also to compare with it the leaves of other species of *Silphium*, in which no tendency to assume a north and south position is shown. * * The observations recorded appear to show that the meridional position of the edges of the leaf is to be explained by the structure of the two surfaces, which being identical, at least in the important respect of the number of the stomata, seek an equal exposure to the light—the mean position of equal exposure, in northern latitudes, being that in which the edges are presented north and south, the latter to the maximum, the former to the minimum of illumination."

LARGE INDUCTION COIL.—W. H. Wahl,

Ph. D., describes, in the *Journal of the Franklin Institute* for March, the induction coil recently constructed for Prof. Morton by E. S. Ritchie, of Boston. It is believed to be the most powerful one now existing. The mammoth coil built for Prof. Pepper by Mr. App, of London, "was nine feet in length, contained 150 miles of wire, and weighed nearly a ton. With a battery of sixty elements, this coil yielded for a while sparks 29 inches in length, but soon failed, and is now, we understand, taken to pieces. The coil, however, now described, containing but $44\frac{1}{2}$ miles of wire, 40 inches in length, and weighing about 250 pounds, gives, with but three cells of battery, sparks 21 inches in length, and after several months of constant use and severe tests, is in perfect condition. * * The battery for exciting this coil consists of three glass jars, 10 inches in diameter and 12 inches high, into which are lowered, by means of a windlass, plates of carbon and zinc, 8x10 inches, five of each occupying each jar. The liquid employed is the mixture of potassium bichromate, water and sulphuric acid, now employed in several forms of battery.

CORRESPONDENCE.

Notes of Travel in Amador County.

[Written for the Press.]

Ione City—Sutter Creek.

Ione City, situated 38 miles from Sacramento and 12 miles from Jackson, the county seat, contains about 300 inhabitants. The valley in which it is situated is very beautiful and productive; but the legalizing of a "Spanish grant," which covered this side of the county, has almost paralyzed its inhabitants. Paying for land a second time at an exorbitant figure explains itself. Some years will elapse before it will have recovered fully.

The Broom and Match Factory at Ione City, owned by John Kirk, Esq., manufactures 3,000 dozen of brooms and 5,000 gross of matches annually.

Hall & Co.'s grist mill, at the same place, has three run of buhrs, driven by an engine of 60 horse-power. Its capacity is about 75 barrels of flour and 50 tons of ground feed daily. About three tons of lignite are used daily for the engine. A mine of this fuel is situated in close proximity to Ione City, and is owned by F. C. Hall. The stratum is from 3½ to 9 feet thick, and can be traced for 10 miles in extent; it lies horizontal, and in many places near the surface.

Sutter Creek, four miles north of Jackson, contains something over 2,000 inhabitants. It is the largest town in the county. Its citizens have just completed one of the finest brick school-houses in the county, if not in the interior of the State, for the education of the rising generation. The structure is 35x55 feet, two stories high, and cost \$10,000; 200 pupils are in daily attendance, and two competent teachers are in charge. This district contains 253 children.

In the Sutter Creek foundry and machine shop, owned and superintended by S. S. Manon, ten men are regularly employed, and for their capacity, they turn out as good work as the larger institutions of the State of the same kind.

Volcano and Vicinity.

Volcano, situated about 12 miles east of Jackson, contains 800 inhabitants. It is situated on what is known as the great lime rock range. Its mines have been worked continuously since '49.

The Amador County Canal and Volcano Ditch, both of which are owned by San Francisco capitalists, supply the district with water. They take their supply of water from the North Fork of the Mokelumne River. This canal was originally a flume, 31 miles in length, with a carrying capacity of 900 inches, and cost \$450,000. It is now being replaced by a substantial ditch. The latter (the Volcano ditch) cost in the neighborhood of \$200,000, and has a carrying capacity of 700 inches, the income of which satisfies its owners.

The following are among the best working placer claims here:—Adams & Co., Podesta & Co., Goodrich & Co., Whitney claims, and Colori & Co.; the latter named using a derrick and working six men. In five days run they washed out \$2,600.

The Marklee mine, owned by Marklee, Nichols & Hanson, is situated about four miles northeast of Volcano, and is considered the best mine in this vicinity. It has been developed to a depth of 300 feet, at which point the ledge will average from one and a half to three feet thick. The rock has averaged from \$30 to \$60 per ton.

The Rodgers mine, owned by the same parties, and situated one mile west of the Marklee mine, promises to equal, if not excel, the former.

The Old Sorocco mine on Elses Creek (in the vicinity), is now being worked by Messrs. Woodcock & Co. The last run of rock taken from the mine, averaged \$60 per ton.

The Douglass mine, on Elses Creek, and the Grass Valley mine on Grass Valley Creek, are both laid up for the present, their owners, Messrs. Sorocco & McLaine, having applied for a U. S. patent for each of them.

Jackson and Vicinity—A Big Ditch.

The Sutter Canal and Mining Co. (incorporated.) Capital stock, \$500,000; C. C. Bowman, President; H. S. Tibbey, Secretary; C. D. Horn, Superintendent; and J. D. Wilson, General Manager. This company are constructing a canal, with a capacity of 5,000 (miners') inches of water, five feet wide on the bottom by eight feet wide on the top, and three feet deep. The water is taken from the North Fork of the Mokelumne river, 45 miles from its destina-

tion. It is being constructed particularly to obtain power to run the quartz mills in this vicinity, and is expected to be completed within three or four months hence. Some 300 men are now engaged in its construction.

The Keunedy mine is situated three-fourths of a mile N. W. of Jackson, and is owned by a joint stock company, the stock of which is all held here. P. Reichling is superintendent. This company claim 2,100 feet on the same lead as the Oneida and Amador. They have a shaft down 500 feet, on an incline of 45°. At this point the ledge will average from six to seven feet thick. Hoisting works upon the same (and very complete) are run by an engine of 25-horse power, and their 20-stamp mill is run by a steam engine of 45-horse power. They crush about 25 tons of rock daily (24 hours), which has averaged thus far \$20 per ton. Thirty-five men are regularly employed.

The Zeile mine, (formerly known as the Coney) is situated one-half mile south of Jackson, and is owned by San Francisco capitalists. This company own 800 feet of a ledge, and have developed it to a depth of 515 feet. Their hoisting works are run by a 20-horse power engine; the shaft is down on an angle of about 50°; their ledge is about 11 feet thick. They have not as yet thoroughly tested the rock in this mine, but the extensive prospecting they are doing, shows at least faith. They now are working 17 men. The rock is highly sulphuretted.

The Kearsings mill, near Jackson, is a custom mill, with four stamps and patent grinder with amalgamating pans, etc., and is owned by the Kearsing Bros. It is run by water power. They crush from eight to ten tons per day (24 hours).

The Oneida mine situated two miles north from Jackson, (and midway between there and Sutter Creek) is owned by an incorporation. A majority of the stock is held in the vicinity. J. D. Fry, of San Francisco, is President, and C. Warkins, Superintendent. The length of the claim is 3,000 feet. They have three different incline shafts down on an angle of 65°; the first is down 200 feet, the 2d 700 feet, and the 3d 800 feet. They are working only through the two latter. The ledge will average 14 feet thick, running from one inch to 20 feet. At present they are working 100 men. Their 60-stamp mill is run by an engine of 60-horse power, and crushes daily 85 tons of rock (24 hours), which averages \$10 per ton. The hoisting works are run by two engines, one of 30, and one of 15-horse power. This mill is complete with all the accompanying pans, machinery, etc., to successfully run a mill of its caliber. More from the same quarter in my next.

L. F. Mc.

Utilizing the Heat of Exhaust Steam.

[Written for the Press.]

EDS. PRESS.—My attention has been called to an item in some newspapers concerning a new method of utilizing the heat of exhaust steam from non-condensing engines which is now lost. This method consists in placing an auxiliary boiler in the smoke flue and evaporating bisulphide of carbon, which is used in a second cylinder, in a similar manner to that of the steam, after which it is condensed and pumped back into the boiler to be used over again. The exhaust steam-pipe from the steam engine is made to pass through a copper coil, which is placed in the bisulphide boiler, and thereby give up all its latent heat to the bisulphide of carbon.

Statements are made of an enormous saving in fuel over the ordinary method without this arrangement, more than 50 per cent.

An illustrated description with some data are published in the *Scientific American* of February 4th, 1871, which would give the impression to general readers and users of steam engines that there was something wonderful in the amount of fuel saved by the addition of a boiler using bisulphide of carbon in the manner stated. The statements in the *Scientific American* are substantially these: That the engine using steam raised 500 pounds 456 feet in 2 hours, while the bisulphide engine raised 500 pounds 528 feet in the same time, showing that the gain in using the waste heat in the chimney and exhaust steam to be 115 per cent.,—which is extraordinary, if we don't look any further. Let us see.

In this experiment, the amount of fuel used in getting up steam and running 2 hours was 5 pounds of wood and shavings, 6 pounds of charcoal and 12 pounds of anthracite coal; all together, 23 pounds.

Let us allow the 5 pounds of wood and

shavings, and 6 pounds of charcoal to be consumed in raising steam, and that the 12 pounds of anthracite only were used to evaporate the steam and bisulphide of carbon during the 2 hours; that would be 6 pounds of coal per hour. Now let us see how much power that 6 pounds of coal generated, or how much useful power was realized by it.

The total work done was 500 pounds raised 984 feet in 2 hours, which is equal to 4,100 pounds raised one foot high per minute. This, divided by 33,000, gives .124 or about ¼ of a horse-power, to exert which required 6 pounds of anthracite coal.

Now in this city, in the National Flour Mills, 1-horse power is obtained by about 4½ pounds of the screenings of Mt. Diablo coal, which is not nearly so efficient a steam fuel as anthracite by at least 12 per cent. And also in the Atlantic States, 1-horse power has been obtained commonly by not exceeding 4 pounds of anthracite coal. It shows that although the bisulphide engine added 115 per cent. to the work done by the steam engine, yet the total amount of work done by the coal consumed was only one-twelfth of the amount performed by ordinary first-class engines; in other words it required 48 pounds of anthracite coal per hour to produce 1-horse power.

That there may be a saving in using a bisulphide boiler and engine in connection with a steam engine and boiler, I do not deny; but until a much closer approximation of results is reached between this method and the present method without the bisulphide engine and boiler, I shall remain doubtful.

W. W. HANSCOM.

San Francisco, March 25th, 1871.

Missouri Tin Mines.

[Written for the Press.]

EDS. PRESS.—I enclose herewith a P. O. money order as subscription for the SCIENTIFIC PRESS. I receive the paper regularly and am well pleased with it; couldn't do without it, in fact.

An item in the PRESS, of March 4th, says: "Missouri has given up hopes of finding tin ore in paying quantities."

The "Tin Mining Company of Missouri" are prosecuting the work of erecting concentrating machinery and building furnaces for smelting, expecting to reduce 40 tons of ore daily. The company have one million stock, 10 per cent. paid up, and not a share for sale. Their hope of success and confidence of having "tin in paying quantities" never were better.

How is the San Jacinto Tin Company, of San Bernardino county, succeeding? Are they getting tin? I had the pleasure of assisting in running out the first bar of tin from their ore, when working in your city about two and a half years ago.

Should you desire any information about Missouri tin mining enterprises, I shall be glad to furnish it. [We should be most pleased to hear again from our correspondent on such matters.—EDS.] I am not interested except so far as I wish the cause success, it being good for the country where I reside.

C. CAVALLIN.

Fredericktown, Mo., March 20th, 1871.

Mexican Mining Words.

The following glossary may be found very convenient to many of our readers. It is sent to us by an able mining engineer who has had an extensive practical experience on our coast, and who says in a private note: "Any miner or mill man who subscribes to your paper, will be repaid many fold, by carefully reading it, in the way of keeping pace with the improvements of the day."

Un Mineral—A mining district.
Las Sierras—Mountain ranges or mountains.
El Cordón—A ridge or spur of a mountain.
El Creston—A crest or outcroppings.
La Guila—A guide or float rock.
Una Vela—A lode or ledge or true fissure vein.
Una Vela tapada—A blind ledge or lode.
El Rumbo—The course.
La Recuesta—The dip.
El Mantlo (mantada)—A flat deposit.
Vela Cata—A new vein. (See *Cata*.)
Una Vena—A Vein—a narrow seam or streak—a "razor blade."
Una Pertinencia—A claim on a lode as allowed by the Mexican Mining Ordinances. It is 200 Varas de Medir (200 yards running measure) (a vara = 33 inches.) The discoverer is allowed three claims together or apart. A Co., is allowed four claims divided into 24 shares (*Acciones*).
Las Medidas—The boundary lines of a claim as marked by *Las Escaleras*—Stakes or *Estacada*—Staked off.
Las Guardas Rayas—Monuments of wood or stone.

La Demasia or *Huaco*—Unclaimed ground between two claims.

La Boca vieja—The mouth—the old month.

Escabar—To strip up a claim on the surface merely.

El Tajo abierto—An open cut.

La Obra—The tunnel—the work.

La Lumbera—Air shaft.

El Socobon—An adit.

El Tiro general—The main shaft.

Un Pozo—A shaft or pit or winze.

Los Canones—Drifts.

Contro-pozo—A "riss" to meet a winze.

Nivel—Level.

La Cata—A small pit. A cayote hole.

El Crucero—A cross cut.

La Tabla—A stope.

El Fronton—A breast.

La Patia (pat-tee-yah)—A narrow foot-road in a mine.

Un Labor—Any portion of a mine from which ore is being extracted.

Guardas de Labor—Roof and walls of a mine in general.

Las Respaladas—The walls of a mine.

El Alto—The hanging wall.

El Abajo—The foot wall.

Contra Mina—An underground connection.

Los Caminos—The traveled roads in any mine, of all kinds.

Los Planes—The deepest workings or bottom of a mine.

Los Pilares—The pillars of a mine—in place of timbers to prevent caving in; to "dispillar" a mine is to knock down the pillars of a mine, contrary to law, and is significant of abandonment.

Un Claro—Any worked out portion of a mine.

De Cielo—Working overhead. The roof.

Barranca—A precipice.

De Pied or *a Pique*—Beneath—sinking or working down—the floor.

A Chiflon—Working down and widening out at the same time.

Los Desagues—The drains of a mine.

Presa—A dam.

Pileta—A snmp or tank.

Paradera—Sluice gates.

Charqueo interior—To lead water to a drain.

Un Tapacalle—(in a shaft) a landing or permanent staging. A gallery.

Tarango—A shifting staging of *Orcones* and *Ladones* (forked poles and rods.)

Echardero—A platform for weighing, sorting or packing ore on. A *Patio* of a mine.

El Patio—The level space at the mouth of a mine.

Las Escaleras—The ladders of a mine of notched pine poles.

Puertas—When a vein pinches—"Cap rock."

Un Quanton—A slip cutting out the ore.

Cavalo—A horse (in a mine.)

Alogar—To gonge a mine—to work narrow, to smother or choke.

Un Amparo—A permit from the Government to quit work on a mine, for any time beyond the customary four months in each year.

Derolada—Gutted, spoiled and abandoned.

Un Clavo—A chimney of ore.

Hilos—Threads of ore.

Un Ojo—A "pocket."

Cinta—A streak of ore.

Una Bonanza—A big rich strike.

Buena Saca—Doing well.

En Frutos—In ore.

En Borra (Emborrescada)—not in pay rock—pettered out, applied to the barrenness of veins—

—not dead work as in a tunnel to cut a vein.

Obra muerta—Dead work.

Fundido—Filled up with water, rock or earth.

Hundido—A settling or sinking.

Una Caida—A fall, a slide.

Chorrera—A cave, a caving in.

Suffocante—Hot air.

Vapor—Foul air.

Un Barrero—A drill hole.

Un Cohete—A blast or "shot."

El Desmonte—The rock left standing after a blast.

Cavassos—Borings.

La Tronada—The rock thrown down at a blast.

El Balo—The dump.

Terrero—A pile of waste rock.

Un Tequio—A task—each cleaners pile of metal.

Bartolina—A room cut in a mine to lock tools, ore, etc., in.

Dispacho or *Dispensa*—An ore house.

Una Adema—A set of timbers.

Ademada—Timbered.

Orcones—Forked poles.

Las Llavas (yarh-beese)—Beams, timbers.

Latones—Small poles.

Cavasal—A cross piece.

Pied derecho—A stud.

Maderas—All kinds of wood used in a mine for any purpose.

Un Malacate—A whim.

Una Manesuela, Argano, Hecho bueno—A windlass.

Calabrote—A large rope.

Una Soga—An 18-thread line of the msgruey plant. (A native rope.)

Mecati—A small line.

Cabreste—A hair rope, or line.

Un Negocio—An enterprise or business.

Destajo—A contract.

El Arroyo—A creek.

La Quebrada—A ravine.

Pedregal—Stony place.

Canada—A gulch.

Risco—A steep rock.

Encampanar—To get under a rival mine, to dig him out.

Abonar—To pay a debt in instalments.

Fueros—Special privileges.

C. B. D.

Durango, Mexico,

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SALE OF ORE.—*Chronicle*, March 25th: Birdsall & Co., of Dayton, Nevada, have purchased 200 tons of copper ore of the Leviathan Co., deliverable at the dump, for \$50 a ton. The ore is used in the manufacture of blue stone. The Leviathan is looking well.

ITEMS.—*Miner*, March 25th: The Monitor Co., on the Tarshish lode, are getting nice ore from their upper tunnel, and are now in a large body of it. The lower tunnel is also following up a good seam. The Schenectady Co., on the same lode, are taking out more and better sack ore than ever before....Grading for the additions to Monitor mill has been commenced, and the carpenters will soon be at work.

CALAVERAS COUNTY.

STRUCK GRAVEL.—*Chronicle*, March 25: Mullen & Co., who for several years have been running a tunnel to strike the Harkins lead, have reached gravel. The tunnel, which is near Worth's hill, below the Junction, is 1,100 feet in length, through solid bed-rock. We are informed that unfortunately the tunnel is 20 or 30 feet too high.

SANDERSON MINE.—Mr. Sanderson, of the quartz mine at Railroad Flat, informs us that the lead is looking remarkably well and improving in appearance. Our readers will recollect that the first crushing of rock from the shaft, near the surface, paid over \$100 per ton.

AMALGAM.—Reed & Hilliary, of West Point, brought a chunk of amalgam to town this week, from their mine. We are informed that \$1,200 were obtained from 14 tons of ore.

EL DORADO COUNTY.

DORAN.—*Placerville Democrat*, April 1st: This mine, near Irish Creek, has a well-defined ledge, four feet thick, and carries free gold with abundant sulphurets.

WHITE OAK TOWNSHIP.—Cor. of same: The Gray boys, while sinking on a quartz lead recently discovered in their inclosure, three miles north-west of Shingle Springs, struck rock at the depth of 15 feet, fabulously rich. It is apparently netted together with gold, and the clay and decomposed quartz intermixed, prospects from 10 to 75 cents to the horn. The ledge is one to three feet in thickness, rich in sulphurets, plainly defined and easily worked. Lahay & Co., working a placer claim in the same field, on Thursday found a nugget weighing 33 ounces—the piece containing not to exceed 3 ounces of rock. In addition to the lump they obtained 7 ounces in fine dust, as the result of one day's work.

INYO COUNTY.

ITEMS.—*Independent*, March 25th: The ditch at the Kearsage is completed, timbers for the tramway are nearly all out, and the machinery connected with the waterwheel is on the ground. The pans, etc., of the San Carlos mill, and of four other mills, have been purchased. The mill will start May 1st with 30 stamps....The Superintendent of the Owens Lake Silver Lead Co. has contracted for 100 tons of silver ore from a mine in the old Keyes district, owned by M. L. Clarke and others, of Bishop Creek....Between 75 and 80 tons of bullion have been shipped from the Swansea works during the past four weeks....P. Lynch and A. M. Edgington recently purchased Wm. Lee's interest in the Kearsage for \$8,400.

CERRO GORDO.—Cor. of same: On the 18th, a party consisting of P. Cassidy, T. McDonough and P. Devlin struck, on the Crowning Glory Hill, a body of ore of the width of 60 feet, and cropping out high above the surrounding ground. Assays by Mr. Senter, of the Belshaw works, resulted in 123 ounces of silver per ton, and a large per cent. of copper.

SILVER SPROUT.—On this lode a 60-foot shaft has been sunk, and a 65-foot tunnel run. Several hundred tons of ore have been extracted, eight lots of which worked from \$28 to \$734 per ton. The mines are 1,000 feet higher than the Kearsage cluster. A tunnel of 550 feet would cut through all the leads. The Co. propose to sell 2,500 shares at a reduced figure to procure a working capital.

MARIPOSA COUNTY.

TO START UP SOON.—*Gazette*, March 31: We learn that the Company will soon commence crushing rock at the Princeton mine. This mill has been idle several years.

NEVADA COUNTY.

ORLEANS.—*Gazette*, March 30th: This Co., on Gold Flat, down 210 feet, commenced hoisting rock this morning. They have their drift opened on the ledge 100 feet. The vein averages a foot in width, and the rock prospects well. Sulphurets have been tested, and yielded \$140 a ton.

PITTSBURG.—This mine has been doing handsomely for eighteen months. The mill and mine give employment to eighty men. Ten stamps are run night and day, crushing twenty-four tons of rock.

MINING REVIEW.—*Grass Valley Union*, April 1st: In the Eureka mine, the main shaft is going down for another level, and the ledge bears mineral as heavily as any part of the ledge above. The mill yields \$2,000 per day, exclusive of sulphurets. The chlorination works are now fired up on a large body of sulphurets, very rich....

The Idaho mine is running night and day with good results....The Allison Ranch has been most of the month on good rock, but lately it is not so good....The Cariboo, an overlay of the main ledge, is doing well. It is very small, but very rich. Rock is being taken out on shares by a company of miners....Perrin's mine has nearly done its dead work. The mill commenced crushing on Friday....North Star rock from 10th level is now going through the mill, and looks splendidly....South Star is developing well....The Combination Co.'s tunnel is in 200 feet....The Coe mine has flattering prospects. Improvements are making in the amalgamating machinery....Greenhorn has a 5-foot ledge north of the shaft, which shows well. On the south, not so well, as yet. The mill is running again....The custom mills of the district have been running more regularly than usual this winter....There is unusual activity in the gravel mines. Locations, and projects, and real work, make the order of the day from Alta Hill to Rough & Ready and even below....The Hope Gravel Co.'s drift northwest is in 700 feet and shows a bed of pay gravel from one foot to two feet thick. The tunnel northeast from bottom of shaft, will be completed in a week or two....Prospects of the Atlanta are encouraging. Water nearly out, and a large ledge at the bottom....Webster Co.'s sluices give out every day much more than expenses. It is estimated that the claim will pay \$20 to the hand. The Co. proposes to put up a mill to run all the dirt through....Baltic are piping into a good breast of washed gravel....Enterprise stopped to repair the engine....Town Talk puts all its gravel through the mill, and pays well.

Same of 2d says Hope Gravel west drift yesterday struck into a larger bed of gravel than yet found in that direction, rich in gold. The bed rock tunnel is also completed. The work ended with greatly improved prospects.

WASHINGTON.—*Transcript*, March 29th: Considerable prospecting is going on with fair results. Same at Rocky Bar. Also on Scotchman's Creek. The people think that these old places will be rich again, when worked with the improved appliances of the day.

NORTH BLOOMFIELD.—Same of 30th: This Co. has made another strike at Malakoff. From 20 to 75 cents to the pan. Some excitement. Lively time in town lots.

ROUGH & READY.—Same of 31st: Landes & Co., Goshen Hill, are piping with 150 feet pressure, and have rich gravel....Portuguese on Squirrel Creek are washing off tailings to work the bed in summer....McSorley & Co. have been washing but now fluming a ditch....Bagley & Co. are opening the same ridge on the south side....Jenkins & Co. realizing good wages....Reynolds & Co. are also running for the channel. They have 200 feet further to go....Topey & Co. have got into the deposit and are making \$5 per day to the man....The Baltic has made one clean up, taking out \$20 per day to the man....Webster Co. taking out \$160 to \$200 every 24 hours....The Picayune adjoining, are running for the same channel through a tunnel.

BIG SALE.—Ed. Williams and Neece & West have sold their claims in the vicinity of Little York, You Bet, and Waloupa, to the Birdseye Creek Gold Mining Co., an English corporation doing business in London. This sale includes the Chalk Bluff ditch.

Same of April 1st says Little York is lively. The new English Co. will commence work at once....Omega is turning out a large amount of money....The report throughout shows an encouraging state of affairs. Capital is seeking investment in gold mines now rather than in silver.

ON THE RIDGE.—Same of April 2d: The prospect was never better. At Birchville

the Bed Rock Tunnel is in 250 feet, and have commenced washing. The Buckeye, at Sweetland, owned by a London Company, clean up every 30 or 40 days \$25,000 or \$30,000, while their expenses are only about \$8,000....The Manzanita Co. are working off the top dirt which is paying well....The American Co. use 1,500 inches of water every ten hours. They run 10 or 12 days and clean up \$10,000 to \$15,000.

SUCKER FLAT.—The Blue Gravel Co. are putting in a diamond drill to be worked by compressed air. The tunnel is in 1,100 feet.

PLACER COUNTY.

GOOD FRIDAY.—*Stars and Stripes*, March 30th: Supt. Purdy has erected very complete hoisting works, and proposes to sink 120 feet before drifting. Everything is in good shape.

DUTCH FLAT.—Cor. of same: The ditches are running full and the mines are under full headway; but few have cleaned up yet. One company on Plug ugly Hill, after washing gravel for sixteen days, cleared up \$2,380. The same ground was claimed and worked on a small scale ten years ago.

RATTLESNAKE BAR.—Cor. of same: The water in the ditch is approaching us slowly. The eliding of the new walls makes it tedious. There are considerable preparations along the line among the miners. From here to Carrollton the ground is etaked off.

SHASTA COUNTY.

THE POTOSI.—*Courier*, April 1st: Hon. John P. Jones, who some time ago purchased this mine at Muletown, is coming up shortly to start work; and if the quartz is found at a certain depth, a mill will be erected.

SIERRA COUNTY.

READY.—*Democrat*, March 30: The American Co. at Morristown have got the water started through their ditch, but not in sufficient quantity to commence work with yet. Their claims are rigged up in splendid shape.

GIBSONVILLE.—Cor. of *Messenger*, April 1st: The Chalcedony bed rock has pitched so far away as to necessitate a horse-power whim. The Bootjack, adjoining, are in a like condition as to bed-rock, and are nearly worked out until they extend their main tunnel, and sink another incline beyond. The Union Co., have a large yard of dirt which they are now washing up. The Nip & Tuck have also a large yard of dirt out, which is expected to pay well. Up Whisky Diggings way, the Nevada Co. claim is paying finely. Dr. Porter and Co. have their claim finely fitted up, and it is prospecting well. The Wild Irish Co. in King Sayers Dominion, are pushing their bed rock tunnel, for the Pilot Peak ridge, with energy, and making fine progress. Pilot Co. 1, are making good headway. The Niagara Co. are opening their ground through the old Vermont tunnel. North American claims have out an extensive yard of gravel, which is expected to wash up largely.

SISKIYOU COUNTY.

ITEMS.—*Yreka Union*, March 26th: Messrs. Edgerton, Spaulding and Bloomer are prospecting on a creek in the Siskiyou Mountains, two or three miles north-west of Cole's. They have found some gold with favorable indications. There is ground for plenty more prospectors, and water is abundant....Moses & Co. are running their quartz mill on Humbug.

TRINITY COUNTY.

ITEMS.—*Journal*, April 1st: At Douglass City, every body is at work. Mason, Marshall & Co. have their bed-rock tunnel in one hundred and fifty feet....Mr. Silcox is crushing quartz at his mill on Indian Creek, and anticipates a good yield....The weather is lovely; miners all at work: no more growling.

Nevada.

COPE DISTRICT.

INDEPENDENCE VALLEY.—*Elko Independent*, April 1st: Mr. J. F. Ford, who showed us rich ore from Independence, gave us the assays of four parcels, as follows: \$307.88; \$118.75; \$15.71; \$120.41. This ore was from Grand Junction district, 20 miles this side of Bull Run.

RECH.—The Independent mine at Mountain City, is improving. The ledge, now three feet, wide, has been drifted on forty feet, and is producing ore worth over \$3,000 per ton.

The Blue Jacket mine, at Bull Run, is being worked successfully. The company has packed its ore to Mountain City for reduction the past winter. After being exempt \$40 per ton for expenses of working, it has paid to the Assessor \$75 for assessment on ore the past three months.

MOUNTAIN CITY.—Among the mines worked at the present time, the El Dorado has a lode five feet in width; Pride of the

West, a ledge four feet wide, and 100 tons of good assorted ore on dump; Little Giant, a two-foot ledge; Monitor, 40 tons of ore on dump; and the Idaho, with 75 tons out.

ELY DISTRICT.

MORE STAMPS.—*Record*, March 26th: Ten additional stamps for the Raymond & Ely Co.'s mill, arrived on Friday.

BULLION IN TWO DAYS.—Same of 30th: Wells, Fargo & Co. shipped, on the 27th inst., via Hamilton, six bars of bullion, from Ph. Felsenthal to San Francisco, valued at \$5,203.06; also, via Salt Lake, seven bars, from the Meadow Valley Co., to New York, \$10,061.31; also, via Salt Lake, nine bars from the Raymond & Ely Co. to New York, \$15,630.32. On the 29th they shipped, via Hamilton, one bar, from B. F. Sides to San Francisco, \$1,392.53; also, via Salt Lake, seven bars, from the Meadow Valley Co. to New York, \$10,315.12; also, via Salt Lake, three bars, from B. W. Field, to New York, \$5,688.82. Total, \$48,381.16.

RICH STRIKE.—We were on Tuesday, shown some fine looking rock from a new mine in Highland district. The rock assays \$100 to \$400 per ton. The ledge is over two feet wide and is known as the Nevada Champion.

FREIBERG DISTRICT.—The Shonte has a large vein of ore at a depth of 900 feet. Workmen had cross-cut seven feet into the vein without reaching the wall. The ore thence is worth \$300 to \$500 per ton. The Morning Star has a supposed average width of 10 feet. A sale of the mine for a large figure is contemplated—two parties being anxious to purchase.

HUMBOLDT.

GALENA DISTRICT.—*Register*, April 1st: The White mine is taking out ore daily, worth \$375 per ton in San Francisco....The Cosmopolitan assays on an average, \$180 per ton. The Butte, lately purchased by a San Francisco company, commenced grading for a 20-stamp mill March 27th. The Boyer boys have struck what is supposed to be the 1st north extension of the Butte. It is two feet in width. The Leidlolph ledge is two feet wide, and worth \$250 per ton.

SHEBA MINE.—*Silver State*, April 1st: Star City has been again vitalized by the recent developments in the Sheba. Old property holders are looking up old titles and erecting landmarks. Some thousands of tons of ore have accumulated during the winter, the concentrating mill having been idle for want of water.

ARIZONA MINE.—We visited this the other day, and followed in the tunnel the 3½-foot ledge 1,200 feet. The ore is chiefly milling ore worth \$75 per ton; but there is a large quantity worth \$3,000 per ton. Whole cost of working, \$7.50. The richest is sacked and shipped.

ITEMS.—The Hope Co. are putting up machinery, and will be ready about the 15th, to work custom rock....Sam King has sold his mine in Central district, for \$20,000.

RESE RIVER.

MONTHLY BULLION SHIPMENT.—*Reveille*, April 1st: There were shipped through Wells, Fargo & Co. during March, to New York by the Manhattan Co. 90 bars of bullion, weighing 10,342 pounds, and of the value of \$125,943.46; and to San Francisco by John A. Paxton & Co., 45 bars, weighing 3,669 pounds, of the value of \$34,288.68—the latter almost entirely the product of the Canfield mill at Belmont. Total, 135 bars, weighing 12,009 pounds, valued at \$160,232.14.

Arizona.

BRADSHAW.—*Prescott Miner*, March 25: Tests made this week, at one of the mills near Prescott, by the Supt., who has worked in several mills at Gold Hill and White Pine, Nevada, are conclusive as to the great richness of the Tiger ore. One piece yielded at the rate of \$2,500 to the ton, and the general average, of all the rock in the ledge, gave between \$600 and \$700 per ton. A test of rock from the big croppings gave from \$50 to \$75 per ton, and when we say that said croppings are 30 feet thick, people can form some idea of this "Bank." Work upon the gold mines was also progressing. The shaft of the Del Pasco was down about 80 feet, and the ore was as rich as ever. The placer miners were making fair wages.

WALKER DISTRICT.—Mr. Shelton is working Vernon ore, and Mr. Pointer, Pointer ore. Both are making money, as every ton of rock is good for \$100 to \$1,000. Mr. Fessel had taken some exceedingly rich rock out of the Victor lode. The Thunderbolt mill will start, next week, on ore from the Davis lode, Hassayampa district. The placer mines have all been doing well. Two men, in two days, took out, with a rocker, \$47.

MORAVE COUNTY.—Some months since, the old Sacramento district was re-organized as the Wallapai; and ore sent to San Francisco gave from \$25 to \$58 per ton. Some miners have undertaken to erect a smelting furnace. Bullion can be carried 24 miles to the Colorado River, and shipped per steamer to San Francisco at a total cost of \$40 per ton. And it is worth \$150 to \$200 per ton.

Colorado.

CARIBOU.—Register, March 29th: The mine never appeared so well as now. It has been a long time since any such magnificent silver ore met our eye, as the lot just sent to us from the Caribou by B. O. Cutter. We are assured that it is but a sample of thousands of tons, already in sight. We fully believe this mine will eclipse anything ever opened in Colorado.

NEVADA DISTRICT.—Whitcomb's mill is kept employed upon ore from the Rising Sun, Indiana and California lodes, running as a regular thing from eight to ten ounces per cord. Martin Lewis is refitting the Gilpin mill. George Wells has taken the Rocky Mountain mill at Mountain city. The Smith & Parmelee mill, under charge of Cochran & Fitzsimmons, is running upon Gregory Second and Fisk ore. The former runs seven to eight ounces per cord, and the latter six. Jack Williams has leased the Kip & Buell mine.

GOLD BULLION.—The gold shipments by the Banks this week foot up to \$20,000 in currency, making a total of \$60,000 for the month thus far.

NATIONAL CO'S MILL.—Herald, March 25: This fine mill in Nevada District has been thoroughly fitted up by the Church Bros. and James Hitchens, and is running to its full capacity on rich ores from Kansas and Burrough lodes. It has 25 stamps, each weighing 800 pounds, with battery and copper-plate amalgamation. In front of each copper table are two boulders, six feet long by two wide; here the tailings from the batteries are partially concentrated. These concentrations are then treated in eighteen (four foot) iron pans.

MOUNTAIN CITY.—The Gregory Second lode, is being worked more extensively than for years. J. H. Johns & Co. have commenced work on two claims in and south of the gulch. Taylor & Co. on the two claims north have fine prospects. Above these on the hill five claims are worked. Three claims are worked in the Fiske lode.

GRAND ISLAND.—The Trojan lode is still yielding rich ore. Eight or ten tons of first-class quartz, worth four or five hundred dollars per ton, are being shipped to Hill, together with a quantity of second class ore, on which a profit will be derived over all expenses. The shaft is down 85 feet.

KANSAS LODE.—The line presents unusual activity. Eleven claims are worked on the Kansas, and five on the Jones & Matteson, its eastern continuation.

GEORGETOWN.—Miner, March 30th: Seven hundred feet below the surface of the earth the Burleigh tunnel, 935 feet in length, has cut a noble true fissure vein, 15 feet in breadth, incased between walls of primitive rock. The vein matter is composed of feldspar, quartz, argentiferous galena, blende and iron pyrites. The breadth of the mineral deposit in the whole vein is about four feet. The highest assay yet obtained is 72 ounces in silver, and 60 per cent. lead. By measurements lately made we are authorized to state that the vein cut is not the Mendota. The beneficial influence that this strike will exert on the mining industry of Colorado, no one can estimate. * * We can safely say that Mr. Burleigh and the friends who have stood by him financially, are the owners of one of the richest inheritances for themselves and their posterity that ever mortal man owned.

Montana.

THE PROSPECT.—New North West, March 24th: That we are to have a good mining season in 1871 is believed by all. The snow-fall is, on the average, the best we have had in years; the ground is in better condition from the fall rains; there are increased facilities for reservoiring and carrying water on the mines; the extent of developed paying mines, in this country, is greater than last year, and no diversion, like that of the Cedar stampede last year, existing this winter, the miners have remained in camp and are preparing to commence in full strength with the first flow of water.

SILVER BOW.—Cor. of same: There are four ditches to carry water on to mining ground in Silver Bow and Rocker. Divide Creek Ditch, capacity 500 inches. Basin Ditch, 450 inches. McMinnville Ditch, 700 inches. Robinson & Turner Ditch, 400 inches. The water in the McMinnville

will be sold very low this season, which will enable plenty of ground to be worked. There will be 15 white companies at work in dry diggings, owning from 1,000 to 4,000 feet of ground. There will be three hydraulic claims worked. Perhaps in all there will be 300 or 400 men employed. The average pay of ground per hand will be from \$6 to \$16 per day. There will also be five miles of the creek worked, which will pay well.

PRAIRIE GULCH.—Cor. of same: There are 12 gulches and 10 bars located in this district. All prospect well. Miners think they will pay \$10 to \$20 per day, at 25 cents per inch for water. There are 500 claims recorded. The area of ground—hills, bars and gulches—that has been prospected and panned out well, is 6 miles square. There are more than 100 miners in camp, and men coming in daily. Harry Adams and George Wessol made a discovery last week, which they named Pilgrim Bar. It prospects 10 cents to the pan. In the vicinity is Leslie Bar, discovered by "Silver Bow Jimmie." He says it prospects 20 cents to the pan. Twenty claims are located on it, and a large extent is open yet. The snow is four feet deep on the level in Uncle Ben's Gulch. Up on the mountains it is seven to ten feet. We expect water in the Miner's Ditch by April 15th.

QUARTZ CREEK.—Cor. of Missoula Pioneer, March 23d: On 17, below the upper discovery, two men, this week, made big wages for four, without counting nuggets, one of which weighed over \$30. There is not a claim in the upper district, thus far, on which bed-rock has been struck, where gold in encouraging prospects has not been found. From the mouth of the creek to No. 6 above discovery, in the lower district, the claims are nearly worked out, and Celestial John has found a footing on 2, 3, 4 and 5. Nos. 6, 7, 8, 9 and 10, in the lower district, have 4,000 feet of lumber sawed, besides rille-blocks in quantities, and will work their ground through a bed-rock flume, using the whole volume of the creek's water. Their pay-streak is 40 feet wide, and yields an average of \$4.50 per day to the man, shoveling into the sluices. The Upper Discovery Co. is running a blind drain to Discovery Claim, and this week averaged \$10 to the set of timbers.

BROWN'S GULCH.—Montanian, March 23: We learn that the new mill in Brown's gulch, erected by Mr. How, will be in running trim in a few weeks, and will make its first run on ore from Hon. Chukky Johnson's Pacific lode.

GRANITE GULCH.—The mills will soon break the monotony of the valley by a run. Mr. Gornley's mill, which is fitted up to run by steam or water power, will commence this week.

ROCKER CITY.—We have been shown a specimen from the Rocker lode, owned by H. A. Gross, opposite Rocker City, which shows free gold in abundance. They are down 85 feet, with a five-foot vein, which is rich.

Oregon.

BOHEMIA.—Jacksonville Sentinel, March 25th: These ledges, on the line between Douglass and Lane counties, 65 miles from Roseburg, were discovered some years since, but the reports were too good, and failed to obtain credence. We see from some of our exchanges, however, that a five-stamp quartz mill has been landed at Eugene City, with the machinery complete, for the Bohemia quartz mines, by Mr. Joseph Knott, of Portland.

Utah.

THE EMMA.—A correspondent of the Colorado Miner, March 16th, writes that the rich ore of this mine is in a "pocket," 28 feet wide and of unknown length. Nineteen-tenths of everything taken out between the walls is sacked for shipment, and is said to be worth \$200 per ton, in lead and silver. About fifty tons is sent daily westward. This will be increased when the roads become good, for there is a large quantity on hand, sacked. The shaft is 180 feet deep. The Flagstaff lode, 500 feet north, has a shaft 200 feet deep, with ore continuous from the surface, varying in width from 8 inches to 6 feet. Five tons worth \$75 per ton, shipped daily.

MONTZUMA.—Salt Lake Tribune, March 18th: Ore was struck a few feet from the surface and has been continuous. The drift extends 265 feet, at which distance the vein opens out in width to an extent that indicates a solid mass of mineral. Being on the same hill, and in the immediate vicinity of the Emma, it is fair to presume that it may prove itself second to it only in extent and value.

Mining Stock Market.

[S. F. Stock and Exchange Board.]

SAN FRANCISCO, Thursday Eve., April 6.

The stock market has continued excited and active during the week, but has been quite irregular. Amador has sold for \$345 to \$350. Crown Point has maintained its position, and even advanced, on Wednesday reaching as high as \$170, which is \$10 better than before (on the 20th ult.).

During March, dividends were disbursed by the following incorporations:

Black Diamond Coal Co., \$25,000; Union Pacific Salt Co., \$2,250; Natoma Water & M. Co., \$3,000; Chollar-Potosi Mining Co., \$280,000; Eureka (Cal.) Mining Co., \$40,000; Eureka Cons. Mining Co., \$37,500; Golden Chariot, (Idaho) M. Co., \$70,000; Hale & Norcross Mining Co., \$40,000; North Star (Cal.) Mining Co., \$9,000; Raymond & Ely Mining Co., \$30,000; Yellow Jacket Mining Co., \$48,000. Total, \$584,750. In 1870, \$144,000; in 1869, \$287,500.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock.

Latest Prices.

Price, Mar. 30.	Highest, Lowest, Apr. 6.	Adv. Dec.
Alpha Cons., \$12	11 1/2	12 1/2
Belcher, \$25	24 1/2	25 1/2
Chollar-Potosi, \$71	70 1/2	71 1/2
Crown Point, \$145	144 1/2	145 1/2
Eureka Cons., \$12	11 1/2	12 1/2
Golden Chariot, \$39	38 1/2	39 1/2
Gould & Curry, \$60	59 1/2	60 1/2
Hale & Norcross, \$16	15 1/2	16 1/2
Ida Elmore, \$18	17 1/2	18 1/2
Imperial, \$28	27 1/2	28 1/2
Kentuck, \$40	39 1/2	40 1/2
Meadow Valley, \$19	18 1/2	19 1/2
Ophir, \$11	10 1/2	11 1/2
Prig. Hid. Treas., \$39	38 1/2	39 1/2
Overman, \$5	4 1/2	5 1/2
Savage, \$68	67 1/2	68 1/2
Sierra Nevada, \$14	13 1/2	14 1/2
Hale & Norcross, \$80	79 1/2	80 1/2
Yellow Jacket, \$65	64 1/2	65 1/2

Alpha Cons., \$12	Ida Elmore, \$18
Amador, \$345	Imperial, \$28
Belcher, \$25	Kentuck, \$40
Chollar-Potosi, \$71	Meadow Valley, \$19
Crown Point, \$145	Ophir, \$11
Eureka Cons., \$12	Prig. Hid. Treas., \$39
Eureka, \$39	Overman, \$5
Golden Chariot, \$39	Savage, \$68
Gould & Curry, \$60	Sierra Nevada, \$14
Hale & Norcross, \$80	Yellow Jacket, \$65

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.
Alpha Cons., G. H., Mar. 1, \$1.	April 5—April 24	
Belcher, G. H., Feb. 17, \$1.	Mar. 22—April 10	
Cons. Virginia, Feb. 27, \$1.	April 3—April 25	
Dancey, Lyon Co., Nev., \$2, \$2.	Apr. 29—May 18	
Empire Mill, N. Y., Feb. 15, \$20.	Mar. 27—April 10	
Empire Mill, N. Y., Feb. 15, \$20.	Mar. 27—April 10	
Gould & Curry, Ya City, Feb. 23, \$12.50.	Mar. 30—Apr. 20	
Imperial, G. H., Mar. 25, \$15.	Apr. 27—May 15	
Julia, Virginia City, March 31, \$1.	May 3—May 22	
Mahogany, Owyhee Co., I. T., Mar. 23, \$2.	May 1—May 29	
Marble Falls, Nye Co., Nev., Mar. 8, \$1.	Apr. 8—Apr. 24	
Maxwell, Amador Co., Dec. 21, \$2.	Mar. 27—May 18	
Mountain City, Nev., Feb. 15, \$20.	Mar. 27—April 10	
Nevada Butte, H. T. Co., Nev., Mar. 8, \$1.	Apr. 25—Apr. 24	
North America Cons. M. Co., Feb. 15, \$5.	Mar. 29—Apr. 27	
Ophir, Ya City, Mar. 25, \$3.	Apr. 27—May 18	
Oriental, Sierra Co., Mar. 21, \$1.	Apr. 24—May 15	
Overman, G. H., Feb. 28, \$2.50.	Apr. 8—April 28	
Rogers, Storey Co., Nev., Feb. 13, \$1.25.	Mar. 20—April 17	
Silver Sprout, Inyo Co., Mar. 15, \$3.25.	May 1—Jun 5	
Serg. Belcher, G. H., Mar. 21, \$3.	Apr. 25—Apr. 24	
Tallulah, Nevada, Mar. 14, \$1.	Apr. 25—May 23	
Union, Sierra Co., \$1	April 6—	

MEETINGS TO BE HELD.

Cadmus,	Annual Meeting, April 17
White Pine Smelting,	Annual Meeting, April 20

LATEST DIVIDENDS—(Within Three Months)

Black Diamond, \$5 per ct.	Payable Mar. 6
Chollar-Potosi, \$5.	Payable April 7
Chollar-Potosi, \$5.	Payable April 7
Eureka, div., \$2.	Payable April 7
Eureka Cons., \$1.	Payable April 10
Golden Chariot, div., \$7	Payable March 10
Hale & Norcross, div., \$5.	Payable April 10
Meadow Valley,	Payable Feb. 9
Natoma, div., 1 per cent.	Payable April 5
North Star, No. 10 to 12.	Payable April 10
Rodriguez,	Payable March 10
Sierra Nevada, div., \$1.	Payable Jan. 16
Yellow Jacket, \$2 50.	Payable April 10

☞ * Advertisers in this journal

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, April 7, 1871.	
Iron.—Duty, Fig. \$7 1/2 per ton; Railroad, 60c @ 100 lbs; Bar, 10c @ 100 lbs; Sheet, polished, 3c @ 100 lbs; Sheet, 1c @ 100 lbs; Plate, 1c @ 100 lbs; Galvanized, 2c @ 100 lbs; Scotch and English Fig Iron, \$34.00 @ \$35.00	
White Pig, \$30.00 @ 35.00	
Refined Bar, good assortment, \$4.00 @ 4.50	
Boiler, No. 1 to 4,	— 04 1/2 —
Plate, No. 5 to 8,	— 04 1/2 —
Sheet, No. 10 to 12,	— 05 —
Sheet, No. 14 to 20,	— 05 1/2 —
Sheet, No. 24 to 27,	— 05 1/2 —
Copper.—Duty: Sheathing, 3 1/2c @ 100 lbs; Pig and Bar, 2 1/2c @ 100 lbs	
Sheathing,	— 26 —
Sheathing, Yellow,	— 20 —
Sheathing,	— 10 —
Composition Nails,	— 21 —
Composition Bolts,	— 21 —
TIN PLATES.—Duty: 2 1/2c per lb. ad valorem	
Plates, 1 C Charcoal,	12 00 —
Plates, 1 C Charcoal,	10 00 —
Roofing Plates,	10 00 —
Banca Tin, Slabs,	— 42 —
STEEL.—English Cast Steel,	— 42 —
QUICKSILVER.—\$1.00 @ 1.10	
LEAD.—Pig, \$10.00 @ 11.00	
Pipe,	— 08 —
Bar,	— 09 —
ZINC.—Sheets, \$10.00 @ 11.00	
BOLAX,	— 25 —

San Francisco Retail Market Rates.

FRIDAY, April 7, 1871.

MISCELLANEOUS.	
Butter, Cal. fr. B.	30 @ 40
Butter, Cal. B.	30 @ 40
do Oregon, B.	25 @ 30
Money, \$ B.	25 @ 30
Cheese, \$ B.	20 @ 25
Eggs, per doz.	25 @ 30
Lard, \$ B.	15 @ 20
Sugar, C. T. B.	10 @ 15
Brown, do, \$ B.	10 @ 15
Best, do, \$ B.	10 @ 15
Sugar, Map. B.	37 1/2 @ 40

PRODUCE, ETC.	
Codfish, dry, B.	60 @ 10
Flour, ex. \$ Bbl. 6 50	67 @ 30
Superior, do 5 50	66 @ 30
Corn Meal, 100 lbs 2 1/2	63 @ 30
Wheat, \$ 100 lbs 2 1/2	63 @ 30
Oats, \$ 100 lbs 1 1/2	61 @ 15

FRUITS, VEGETABLES, ETC.	
Fine Apples, \$ 50	60 @ 80
Barley, \$ B.	3 00 @ 50
Cal. Walnuts, B.	75 @ 100
Cranberries, \$ B.	75 @ 100
Cranberries, O. S.	60 @ 100
Apples, do, 1 lb	12 @ 15
Pears, table, \$ B.	12 @ 15
Oranges, \$ doz.	50 @ 75
Asparagus, \$ doz.	75 @ 100
Leeks, \$ doz.	12 @ 15
Asparagus, wh. \$	12 @ 15
Green, do, \$	10 @ 12
Artichokes, \$	10 @ 12
Brussels sprouts, \$	10 @ 12
Beets, \$ doz.	20 @ 25
Potatoes, \$ B.	2 @ 3
Corned beef, \$	20 @ 25
Potatoes, new, \$	10 @ 12
Tomatoes, \$ B.	10 @ 12
Broccoli, \$ doz.	50 @ 60
Cauliflower, \$	20 @ 30
Cabbage, \$ doz.	30 @ 40
Carrots, \$ doz.	10 @ 15
Celery, \$ doz.	15 @ 20
Crisp, \$ doz	20 @ 25
Dried Herbs, \$ B	25 @ 30

POULTRY, GAME, MEATS, ETC.	
Chickens, spiced	75 @ 101
Ducks, \$ B.	20 @ 25
Geese, \$ B.	20 @ 25
Tame, do, \$ 100	20 @ 25
Teal, \$ doz.	30 @ 40
Geese, wild, each	37 1/2 @ 50
Tame, pair, \$ 50	50 @ 60
From Chicago, ..	— 50 —
Hens, each,	75 @ 100
Snipe, \$ doz.	25 @ 30
English, do, \$ 250	30 @ 40
Venison, \$ B.	40 @ 50
Quails, \$ doz	20 @ 30
Pheasants, dom. \$ doz	60 @ 80
Wild, do, \$ doz	60 @ 80
Hares, each,	40 @ 50
Rabbits, tame, ..	50 @ 100
Turkey, \$ B.	25 @ 30
Squirrel, pair, \$ 25	25 @ 30
Beef, tend, \$ B.	20 @ 25
Pork, ham and rib	15 @ 20
Corned, \$ B.	10 @ 12
Smoked, \$ B.	15 @ 20
Pork, rib, etc, \$ B	12 1/2 @ 15
Veal, \$ B.	15 @ 20
Veal, \$ B.	15 @ 20
Outlet, do,	20 @ 25
Mutton chops, \$	12 1/2 @ 15
Soft, \$ B.	12 1/2 @ 15
Lamb, \$ B.	12 1/2 @ 15
Tongues, beef, ea	10 @ 12

* Per lb. † Per dozen. ‡ Per gallon.

Wool Prices in New York.

BROWN'S CIRCULAR, March, 1871.	
DOMESTIC FLEECES.	
Saxony Fleeces,	47 @ 50
Full-bled Merino, 48 @ 50	47 @ 50
Half-bled Merino, 47 @ 50	47 @ 50

OHIO, PENNSYLVANIA AND VIRGINIA.	
Choice Set'd Saxony Fl. 33 @ 35	Quarter-bled Fleeces, 48 @ 50
Choice Set'd Merino, 33 @ 35	Common Fleeces, 48 @ 50
Choice Set'd Merino, 33 @ 35	Combining Fleeces, 48 @ 50
Half-bled Merino, 47 @ 50	Combining Fleeces, 48 @ 50

IOWA, VERMONT AND ILLINOIS.	
Full-bled Merino, 45 @ 50	Quarter-bled Fleeces, 48 @ 50
Half-bled Merino, 45 @ 50	Combining Fleeces, 48 @ 50

MISSOURI, KENTUCKY AND TENNESSEE.	
Washed Fleeces, 46 @ 50	Unwashed Combining, 42 @ 45
Unwashed Fleeces, 44 @ 45	Canada Fleeces, 45 @ 50

TUB-WASHED WOOL.	
Choice,	50 @ 55
Fair,	45 @ 50

PULLED WOOL.	
N. Y. City extra Pulled, 42 @ 45	Country extra Pulled, 47 @ 50
N. Y. City super Pulled, 44 @ 48	Country super Pulled, 47 @ 50
N. Y. City No. 1 Pulled, 30 @ 35	Country No. 1 Pulled, 32 @ 35
Western super and ext. 40 @ 44	Canada Pulled, 45 @ 50

CALIFORNIA.	
Spring Clip, fine,	41 @ 47
Spring Clip, medium,	34 @ 37
Spring Clip, lg ds & br 27 @ 38	Super Pulled, 40 @ 44
Full Clip, A, 1.....	25 @ 30

TEXAS.	
Fine,	35 @ 38
Medium,	33 @ 38
Low,	26 @ 33

FOREIGN WOOLS.	
Cape of Good Hope,	30 @ 33
Mestiza Pulled, X & XX, 55 @ 65	Buenos Ayres Mestiza, ..
Mestiza Pulled, low gds, 45 @ 50	

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, April 6.	
SOLE LEATHER.—The demand is still equal to the supply, and prices firm.	
City Tanned Leather, \$ B.	25 @ 30
Santa Cruz Leather, \$ B.	25 @ 30
Country Leather, \$ B.	25 @ 30
CALF AND KIP SKINS.—The unsettled state of affairs in France still keeps French stocks high, with an upward tendency. Domestic Skins have not changed.	
Best French Calf Skins, \$ doz	\$75 @ 100 00
Common French Calf Skins, \$ doz	35 @ 60 75 00
Santa Cruz Leather, \$ B.	1 @ 2 50
California Kip, \$ doz	60 @ 75 00
Eastern Wheel Stuffed Calf, \$ B.	80 @ 1 25
Eastern Bench Stuffed Calf, \$ B.	11 @ 1 25
Best Cord Calf for Backs, \$ B.	1 @ 2 50
Sheep Roams for Topping, all colors, \$ doz.	5 @ 10 50
Sheep Roams for Linings, all colors, \$ doz.	5 @ 10 50
California Russet Sheep Linings,	1 75 @ 5 50
Best Cord Calf Boot Legs, \$ pair	4 @ 5 00
Good French Calf Boot Legs, \$ pair	4 @ 5 00
French Calf Boot Legs, \$ pair	4 @ 5 00
Best Cord Calf for Backs, \$ B.	1 @ 2 50
Fair Bridge Leather, \$ B.	40 @ 72 00
Skirting Leather, \$ B.	30 @ 37 1/2
Welt Leather, \$ doz.	30 @ 50 00
Buff Leather, \$ foot	25 @ 25

MULLER'S BRAZILIAN

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MARCH 21st.

COMBINED ORE CRUSHER AND AMALGAMATOR.—Lyman Griswold, Denver, Colorado Territory.
LUBRICATOR.—Tapping Reeves, Little River, Cal.
ADVERTISING LAMP.—Emil Boesch, San Francisco, Cal.
ANKLE BRACE.—Jacob S. Niswander, Oakland, Cal.
HYDRAULIC NOZZLE.—Henry Shaw, Nevada City, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

IMPROVED WAGON AXLE.—C. R. Donner, Sonora, Cal. An illustration with description of this useful invention was given in the Press of March 18th, 1871.

IMPROVED MOP-HOLDER.—J. Brizee, Alvarado, Cal. This invention relates to an improved mop-holder, which is simple and cheap. It consists in employing strong wires or rods, which are arranged in a manner at once simple, easily of adjustment and durable, and which hold the mop securely to the handle. Housekeepers will find it well worth the trouble to examine the device.

MACHINE FOR MAKING HOOKS AND EYES.—J. T. Ford, S. F. Mr. Ford has succeeded in inventing a valuable machine for making hooks and eyes for toilet use directly from the reeled wire, one of each kind being made at each revolution of the driving wheel and completed ready for use. The mechanism is all driven from one shaft, and is remarkably simple and effective. Without illustrations, a description could hardly be made intelligible. Suffice it to say that the machine has been on exhibition at the Mechanics' Institute Exhibition and has attracted very considerable attention by its simplicity and rapidity. Large offers, we understand, have been made the inventor for his patent right. This is the only machine ever patented in this country for making both hooks and eyes.

SPRING FOR VEHICLES.—J. R. Hiller, Woodland, Cal. This is an improvement on a former patent granted to Mr. Hiller, and relates to an improved system of wooden springs for carriages and light wagons, by which an easy vertical or rocking motion is communicated to the carriage body. By this arrangement, the body is connected at all points directly with the frame work of the carriage, and the strain is received equally by all the springs. The same easy motion obtained by the use of the former device of Mr. Hiller, is here secured by a simpler arrangement of the springs, while the body is more firmly braced but still capable of yielding in either direction with equal facility. Both devices are excellent examples of practical inventive talent.

IMPROVED DOOR CLAMP.—H. O. Hooper, Diamond Springs, El Dorado County, Cal. This invention consists in so forming the movable side pieces of the clamps which hold a door, and their operating screws and gears, that these side pieces will be moved equally at the top and the bottom and will not necessitate an extension of those pieces down through the floor. It is a modification of a former invention of Mr. Hooper's, which was patented in July, 1869. The present arrangement ensures a perfectly parallel movement of the clamps so that they will always stand vertical, whether widely separated or near together, and will thus hold the door more securely. A simplification of the device is also effected.

To Miners and Farmers.

The following letter from the Commissioner of the Land Office to Hon. A. A. Sargent, contains instructions which will enable miners and farmers to adjust their boundaries and treat what is left of forty-acre tracts as enterable as agricultural lands. It is very convenient to both miners and farmers:

I have the honor to acknowledge the receipt of your letter of the 7th inst., inclosing one dated at Nevada, California, the 25th ultimo, from H. S. Bradley, in relation to mineral affidavits, and with reference to the subject would state that, prior to the passage of the amendatory mining act of July 9th, 1870, the local land officers were instructed that when lands were surveyed and parties sought to establish their mineral character, the affidavits alleging particular tracts to be more valuable for mining than for agricultural purposes, should be made to apply to the *smallest legal subdivisions*, which at that time were forty-acre tracts.

Since the passage of said act of July 9th, 1870, authorizing at the expense of claimants the subdivisions of forty-into ten-acre tracts, the latter are recognized as the *smallest legal subdivisions* in mineral regions, where parties have caused such subdivisions to be made agreeably to the law and instructions. And no reason is perceived why the same proof of mineral or non-mineral character should not be made to apply to each one of the ten-acre lots in a forty, that has hitherto been applicable to the forty-acre tract itself, there being doubtless many forty-acre tracts in mining districts of which a part may be valuable for mining, and the remainder clearly agricultural, or containing deposits of mineral in such limited quantities as not to be remunerative to the miner, and which it is the policy of the Government to dispose of to permanent settlers under the homestead or preemption laws, instead of leaving them to remain out of the market indefinitely, by reason of their contiguity to lands containing mines.

It is contemplated to instruct the local officers to that effect at an early date.

The letter of Bradley is herewith returned. Very respectfully, your obedient servant.

WILLIS DRUMMOND, Commissioner.
March 20th, 1871.

Bay District Horticultural Society.

This society held a special meeting last Saturday. It will hereafter hold meetings, open to the public, on the second Saturday of each month, at No. 622 Clay street.

Arrangements have been completed by which the Society will be enabled to give a horticultural exhibition in August next. The Society has negotiated with the Mechanics' Institute, to build a wing to the main building of the Pavilion, forty-five feet wide and 300 feet long, on Geary street, which is to be under control of the Horticultural Society, and is to be connected by three long passage-ways with the main building. This exhibition will comprise plants, flowers, fruits, vegetables, seeds, etc.

The premium list is already completed, and prizes to the amount of six hundred dollars will be offered. It is proposed to introduce some new features in this exhibition, and to make it surpass anything of the kind ever given here. The office of the Secretary is at No. 418 Kearny street. Applications must be made to the Secretary for space in the Horticultural Exhibition. The rules and regulations, together with the premium list will be ready in a short time.

An Unknown World.

When Bret Harte left this coast for the East, some fears were expressed as to the continued excellence of the *Overland Monthly*, of which he had been editor. That by his departure a loss was sustained, no reasonably-minded man can deny, but that the loss was irreparable, is not for a moment to be supposed. The conductors of the magazine have been stirred up to still greater exertions, and the talent of the coast has responded. The *Overland Monthly* sustains well its acquired position.

The April number is not a whit inferior to its predecessors. Freshness and talent, energy and dash, carefulness and accuracy are visible on every page, and the journal still maintains for us its wonted charms. That the public are of this opinion, is shown by the circulation which has increased largely. The young Pacific coast has vigorous talent and, we believe, will be able to supply the older Atlantic coast with other excellent writers besides Mr. Harte. It is a little queer, though, that the younger should be able to supply the older community with this article.

From the *Overland* for this month we clip the following:

How little is really known about the Island World of the Pacific! Who has ever numbered or named these little rims, with a circle of coral and a fringe of cocoanut-trees, rising out of the ocean? An article in this number is devoted to the description of one of these islands (Upolu), of which few ever heard. There is a wilderness of islands unclaimed. Now and then some adventurer tells us strange stories of people who live in these enchanted isles, and know how to roast a pig, and can do a White Man to a turn if he is not too tough, in a way to confound our notions of civilization. Skippers who have committed barratry, fugitives, pirates, and rovers thread these intricate channels, but the story of their going and coming is not known; in fact, many of them, to the great comfort of former friends, never come back to tell the story. But what a field for exploration and discovery! A six-months' cruise in a staunch yacht would be fruitful of strange adventures. There are islands just coming to the surface; others which in some great convulsion have been forced to "duck under," with no prospect of coming up all right in our times. Some there are, thank heaven, where the diabolism of Dr. Faust is not known, and where the revenue tax is honestly paid, in shells, at par value. The Empire of the Sea will one day be organized from a thousand islands, which, as yet, have not so much as a name.

A Great University.

The magazines of the United States are of comparatively recent growth. Twenty years ago we had none,—nothing but a few quarterlies of heavy digestion and two or three monthlies of trash. But thirteen years ago the *Atlantic Monthly* was born in a favored soil, and its wondrous growth resulted in such a success, that it caused the foundation of other like periodicals, many of great merit but none excelling the parent bush. The *Atlantic* is now of a ripe age, and is the standard by which to compare and judge other magazines. Many of its old contributors, writers of world-wide fame, still continue to enrich its pages, while it attracts to it the promising young talent which is of more recent growth. Its pages are fragrant, rich and fresh, retaining all the excellencies for which it has been noted, and containing others new and modern. In the April number, just received, we find a toothsome repast, and we pick out a few crumbs from a dish which is of interest to our coast now that we are working on the University question.

The University at Berlin counts its students by thousands, its professors by hundreds. There is no branch of human knowledge without its teacher. One can study Egyptian hieroglyphics or the Assyrian arrow-head inscriptions. A new pimple can hardly break out on the blotched face of the moon, without a lecture from a professor next day to explain the theory of its development. The poor earthquakes are hardly left to shake in peace an out-of-the-way strip of South American coast or Calabrian plain, but a German professor violates their privacy, undertakes to see whence they come and whither they go, and even tries to predict when they will go to shaking again. The vast building of the University stands opposite the palace of the king. Large as it is, its halls are crowded at the end of every hour by the thousand or two of young men, who presently disappear within the lecture-rooms. Here in past years have been Hegel and Fichte, the brothers Grimm, the brothers Humboldt, Niebuhr, and Carl Ritter. Here now are Lepsius and Curtius, Virchow and Hoffman, Ranke and Mommsen,—the

world's first scholars in the past and present. The student selects his lecturers, then goes day by day through the semesters to the plain lecture-rooms, taking notes diligently at benches which have been whittled well by his predecessors, and where he too most likely will carve his own autograph and perhaps the name of the dear girl he adores,—for Yankee boys have no monopoly of the jack-knife. * * * To crown all, the schools and University at Berlin are magnificently supplemented in the great Museum, a vast collection where one may study the rise and progress of civilization in every race of past ages that has had a history, and the present condition of perhaps every people, civilized or wild, under the sun.

The New Geyser Field of Montana.

According to the Eastern papers, Hon. N. P. Langford has been lecturing on a trip from Helena and along the Yellowstone river, in Montana, to Yellowstone Lake Wyoming. He thus described a remarkable volcanic district:

Judge, then, of our astonishment, on entering the basin of the Madison, at seeing just before us an immense body of sparkling water projected suddenly and with terrific force into the air to the height of 125 feet. We had found a real geyser. In the valley before us were 1,000 hot springs of various sizes, and 500 craters throwing out vapor. The geysers were seen in action in every direction, projecting water to various heights. The one first referred to was throwing from an irregular crevice, about 7 by 3 feet, a column of water of corresponding dimensions to a height of 125 feet. Various names were given to the geysers. One was called the "Fan," as it threw up to a height of 60 feet two radiating sheets of water, resembling a feather fan. Forty feet from this geyser is a vent, connected with it, and two feet in diameter, which during the eruption, expels, with loud reports, dense masses of vapor. One of the party crawled into "The Grotto" from curiosity, not supposing it to be a live geyser, and as he emerged, he was followed by an eruption of boiling water, which, if it had overtaken him, would have cooked him. "The Giant" is a rugged deposit, presenting in form a miniature model of the Coliseum. It has an opening six feet in diameter. A remarkable peculiarity of this geyser is the duration of its discharges, which continued for three hours in a steady stream five feet in diameter and 145 feet high. Opposite our camp was a symmetrical cone, like a bee-hive, about five feet at the base, and with an orifice at the top of 24 by 36 inches. We had not suspected it to be a geyser, till one morning there suddenly shot up from it a column of water which was found, by triangulation, to be 219 feet high. "The Giantess" throws up a column six inches in diameter to a height of 250 feet. This was the highest of all. The rays of the sun falling upon the geysers in action produced an infinite variety of prismatic hues, like broken up rainbows.

The explorers were much impressed by the beauty and grandeur of the valley of the Yellowstone river, and found cañons rivaling those of the Colorado. They proceeded directly up the valley, encountering many wonders on the way, such as immense waterfalls, columns of pillar basalt, like the "Giant's Causeway," and hot, and cold and sulphur springs, until in a few days they reached a summit from which they obtained a view of Yellowstone Lake, and to visit it left the well defined Indian trail and passed through a region never before traversed by civilized men.

The Yellowstone Lake was reached 12 miles beyond the mud volcano, and many days were spent in exploring the country in its vicinity. The lake was ascertained to be 8,330 feet above the level of the sea. It is an expansion of the river, and is about 25 miles long by 15 wide. It abounds in speckled trout of the finest quality, and vast flocks of geese, ducks, swans, and pelicans resort to it. It is surrounded by stupendous mountain ranges, which are approached on all sides by undulating plains and grassy foot-hills. Forests of pine touch its banks at intervals, and its beautiful margin presents every variety of sand and pebbly beach, glittering with crystals, carnelian and chalcedony. Indians rarely approach it on account of the superstition inspired by the volcanic forces of the vicinity.

DURING the siege of Paris, fifty-four balloons have carried two million five hundred thousand letters—a weight of some twenty-two thousand pounds.

HOME INDUSTRY.

Our Sugar Supply.

EDITORS PRESS:—The consumers of sugars in California and the country to the east of the Sierras, deriving their supply through the port of San Francisco alone, pay for this one agricultural product over \$6,750,000 annually. It is therefore of immense importance to know how much of this enormous consumption can be supplied from the industry of our own people.

When the late Geo. Gordon was largely interested in the refining of crude sugars obtained from Central and South America and the Pacific Islands, it became with him a question of great interest as to whether the enormous sums of gold annually paid for foreign raw sugars, could not to some considerable extent be kept at home.

He was a man of comprehensive views, and of great and good judgment, and as his thoughts naturally turned to the consideration of the great sources of sugar supply, he could not but observe that the manufacture of sugar from beets was rapidly gaining in importance in many of the countries of Europe.

This led him to think that perhaps California, able to compete with any country on earth in vegetable productions might also produce her own sugars. His thoughts, study and observations on the subject finally took form and bearing in several articles in which he expressed his firm belief that California could profitably make her own raw sugar from beets.

Designing, however, to make the thing perfectly clear to his own mind, he made a trip to Europe, largely with the view of comprehending the whole subject of its adaptability to a grand industry for California. And what was the result? He found that the manufacture of beet sugar was not only largely on the increase in European countries, but that it was actually driving the foreign or cane sugars from all their markets, in a direct competition in the matter of cost; that raw beet sugar was actually produced at a less cost than cane sugar could be made and delivered there.

Thus far then, all was well, very well; for he saw in prospect cheaper raw sugars for his own refineries, than could possibly be obtained from foreign ports, and also the certain introduction of a new and immensely important industry amongst us.

Evidence of Success at Alvarado.

But what other fact came under his observation while pursuing his investigations? Simply this, that to work a beet sugary successfully and profitably, it should have a capacity for working at least twenty tons of beets per day; and then, that every beet sugary capable of working that quantity of beets per day, was also its own refinery, and a refinery that could be employed upon other raw sugars from cane or beets.

Here was something that put a new phase upon the whole subject of beet sugar manufacture in California. If small beet sugaries working twenty tons of beets a day can supply the country with raw sugars, and every sugary do its own refining, what was to become of the large capital now invested in the San Francisco refineries?

This was certainly an important question to those most interested, and to my mind fully accounts for all the opposition to the beet sugar industry.

Every Sugary its own Refinery.

The Alvarado beet sugar company has been operating upon beets grown on some two hundred acres of land, for the last three months. None but those immediately interested are posted as to the actual profit that has attended the first working campaign of this company, and for a very sensible reason. If the business is to prove a success, the company want more than their original two hundred acres of land. If it is to result in loss, they want no more land. And what appears to be the fact? why simply this, that they have just now purchased two hundred additional acres of land at two hundred dollars per acre. This does not look much like a failure to make sugar profitably. And if they can do well with land at two hundred dol-

lars per acre, what may not others do, who land need not exceed twenty-five dollars per acre?

In proof of my other position that a beet sugary is also a refinery, we see the Alvarado company already in the market for the purchase of raw cane sugars for refining processes.

That this company can successfully compete with the large and costly refineries of San Francisco in the refining of low grade sugars, there is no possible doubt; for what can be and is done in all the beet sugar countries in Europe, can be done here.

With this view of the situation, are not the objects and purposes of those who are opposing the introduction of beet sugar manufacture along the whole extent of our great valleys, perfectly transparent.

Sugar from Melons.

The following is a correct translation from the most recent work in the French language, on the production of sugar from beets, melons, etc.:

The author says: "I have been experimenting on the juices of two varieties of melons, the most noted for their richness in sugar, and find in them a density equal to 9° Baumé, beet juice seldom exceeding 8° Baumé. It produces free, detached crystals, dry, and of excellent flavor.

"I have devoted to this subject a series of experiments on an extended scale, and from them have derived excellent results. The idea of making sugar and alcohol from melons is no new thing. As early as 1837, an enterprising Hungarian, M. Hoffman, obtained from the melon a notable quantity of juice, which he manufactured so perfectly as to be fit for immediate use, without submitting it to the operations of the refinery.

"According to that observer, melons gave as much sugar as beets in that locality; they gave double the yield from a given area of land; they grow willingly in all soils; the fruit produces a considerable quantity of seed, which yields 16 per cent. of good table oil. The manufacture commences in July and is finished in January. The juice is very easy to extract, and is equal to eighty-two per cent. of the weight of the fruit; it keeps better than the juice or pulp of beets, and is more easily worked.

"A member of the Industrial Society of Hanover, M. F. Marquardt, duly appreciated at that time the efforts and method of M. Hoffman, by saying that a Hungarian manufacturer, M. Hoffman, is occupied advantageously in the extraction of sugar from melons. That the plant is cultivated in great abundance in the locality which he inhabits—Zombor—as well as in other countries; that every arid spot, every place in the garden, in the fields and forests, useful for no other purpose, can be utilized for the culture of melons.

"The seed does not require to be planted in ground wholly plowed, or in very rich soil, nor with any particular care, and yet the fruit is produced in the greatest abundance.

"The culture demands but little work or care; the growth of the plant is vigorous, with but a small quantity of manure, even upon old, worn out land.

"An inventor of machinery adapted to the manufacture of sugar from melons, has just obtained a patent for his establishment, a large melon sugary in Hungary. Numerous specimens of sugars from this establishment have been from time to time, during the last three years, brought under the notice of the National Industrial Society of Hungary, and the following are the observations and records of that society in regard to that establishment and its products.

"The brown sugar is but a very little colored, and has a better flavor than the brown sugar from beets. The refined sugar is a clear white, and has a flavor perfectly pure and sweet. It has a fine and beautiful grain; in a word, equal to the best refined sugar from the sugar-cane.

"The melon contains sugar in larger quantities than the beet. By the use of a simple screw press, there is obtained easily six per cent. of sugar, and by employing the hydraulic press, more than seven per cent. In Bohemia, the same area of land, of the same quality, produces 450 quintaux of melons to 200 of beets; and whilst the production of seed in the former requires neither extra labor nor land, the seed from beets requires both.

"Twenty-five pounds of melon seeds will easily yield four pounds of very agreeable table oil, equal to olive, and the oil obtained from the annual crop of seeds, after reserving sufficient for the next year's seedling, will pay half the cost of culture of the entire crop.

"The manipulations in the manufacture of melon sugar are much more simple than in the manufacture from beets. The melon juice does not require the same care and rapid working, for the rasped pulp can rest for six days, and the expressed juice for three weeks, without danger from fermentation or injury to the sugar; but little or no scum rises in boiling, and it is much less liable to burn than the juice of beets.

"The pulp and seed residuo after extracting the oil, is very nutritive and very healthy for animals.

"The syrup and the brown sugars have a slight but very agreeable taste of melon, and is perfectly acceptable for direct consumption, which cannot be said of beet syrup, on account of its disagreeably bitter, herbaeous flavor.

"Do therefore," says the author, "especially recommend to agriculturists the production of sugar from melons, as an industry entirely within the scope of their ability; at the same time that it yields a larger profit than is derived from any other agricultural product from the same area of ground at the same cost."

The foregoing I offer in evidence of the practicability of sugar making from melons.

W. W.

GOOD HEALTH.

How to Prevent Spring Sickness.

Dr. Wood, in the *Herald of Health* for April, gives the reason why so many people are subject to a "bilious attack" every spring, and points out how the trouble may be avoided. This periodical complaint is usually termed "spring sickness." We condense from the Doctor's remarks as follows:

There is no more need of people being sick in the spring than at any other time of the year. This periodical sickness may easily be avoided by a little attention to diet.

During the winter people eat larger quantities of carbonaceous food, such as fat meat, butter, bread, etc.—the system naturally craving such diet more than during the summer, to keep up the animal heat against the greater cold of winter. As a general thing, more is eaten than is necessary, and as a consequence, the system is clogged up, and the excretory organs, particularly the liver, is overburdened in vain efforts to get rid of it. Those who lead sedentary lives, and get but little outdoor exercise, generally suffer most.

This difficulty is greatly heightened in the case of persons who continue this kind of diet late into the spring, after the system stands less in need of it.

Now to prevent this suffering, a person should eat a smaller portion of the food mentioned, substituting instead, an increased quantity of vegetables and acid fruits. To this end persons of sedentary habits, especially, should eat freely of canned fruits, when the natural fruit was unobtainable. [Such fruits we may add should be put up in their own juice, exclusively, not a particle of sugar should be added in the process of canning; if sugar must be eaten with them at all, it is better to sprinkle it over the fruit at the time of eating.]

There is perhaps no one thing better calculated to prevent "spring sickness" than a free use during the winter, and especially as spring approaches, of tart apples, eaten in any manner, cooked or raw—provided they are eaten as a part of the regular meals, and not between while.

HOW TO GIVE CHILDREN AN APPETITE.—Give children an abundance of out-door exercise, fun and frolic; make them regular in their habits, and feed them only upon plain, nourishing food, and they will seldom, if ever, complain of a lack of appetite. But keep them overtaken in school, confined closely to the house the rest of the time, frowning down every attempt at play; feed them upon rich or high seasoned food, candies, nuts, etc., allow them to eat between meals and late in the evening, and you need not expect them to have good

appetites. On the contrary, you may expect they will be pale, weak and sickly.

Don't cram them with food when they don't want, or have no appetite for it—such a course is slow murder. If they have no appetites, encourage, and if need be, command them to take exercise in the open air. Don't allow them to study too much, and especially keep them from reading the exciting light literature which so much abounds in our book stores and circulating libraries. In addition to securing exercise for the children as above, change their diet somewhat; especially if they have been eating fine flour, change to coarse or Graham flour.

TROPICAL FRUITS.—The reason why tropical fruits are so generally unhealthy when eaten in temperate climates, is because they are almost always picked green and allowed to ripen during their transportation. No food is healthier than perfectly ripe fruit—either tropical or temperate—picked and eaten directly from the tree, especially when eaten at and as a part of regular meals.

What Sickness Costs.

The *Medical and Surgical Reporter* estimates the cost, to the people of the United States, of medical services and medicines, at \$100,000,000, and adds \$25,000,000 for the quack medicines swallowed. "Let the people," it says, "study these figures awhile, and then reflect that probably one-half, or certainly a large fraction, of this expense is incurred by a deliberate infraction of the laws of health; that, if they tipped less, smoked less, overworked less, were less 'fast' and less self-indulgent, they would save some thirty or forty millions a year."

If the cost of the loss of time, loss of happiness, loss of ability to do and dare was added to the above, there would be no counting the expense of sickness. And then add to this the expense of those indulgences that make us sick!

The truth is, sickness is the most expensive nuisance on the face of the globe. There may be instances where it makes people better, but generally it makes people selfish, sad, misanthropic, nervous, mean and miserable. The best way to make ourselves happy and good is to keep ourselves well. Then we are apt to be sweet and kind and wholesome. Moral reform societies and tract societies might learn a lesson from this fact, and do more good with less money than they are now doing.

Eating too Fast.

Eating too fast, generally involves eating too much—more than is needed for the support and nutrition of the body, and the reason for this is, that the organs of taste which are our guide in this matter, are not allowed sufficient voice; they are not allowed time to take cognizance of the presence of food ere it is pushed past them into the recesses of the stomach. They do not therefore have opportunity to represent the real needs of the system, and hence allow the crowding of the stomach. I hold that thirty minutes should be spent at each meal, and spent too, in chewing the food a good portion of the time; not in continued putting in and swallowing, but in pleasant chat and laugh instead of a continuance of the intense nervous pressure of the office or library. If you lay out to spend thirty minutes in this way at your meals you may rest assured you will not eat too much, and that what you do eat will be in the best condition for appropriation to the need of the system. You will be healthier in body, happier in mind, and more vigorous in brain—for there are few things that so clog the brain as a meal of half-eaten food put into the stomach.

OPEN THE DOORS.—Where there are children, it is of great importance that rooms and entries should be of the same temperature, for certainly a large proportion of the chest and bowel affections of the young can be traced to sudden changes of temperature, especially when the little ones are in the habit of passing from over-warmed rooms into somewhat under-warmed entries.

There is no need to dilate on the subject of ventilation; but even where stoves are used and a certain ventilation is thus afforded, our remarks hold true; for there is no doubt that all ordinary modes of burning coal pour into our rooms so much of the inodorous, tasteless carbonic oxides and other gases that we can hardly have too much fresh air with which to dilute it.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay St., below Sansone.

Subscriptions payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, April 8, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Mar. 29, 1871. Legal Tenders
buying @90%; selling @91½. Gold in New York to-day
110%.

Table of Contents.

Another Shake; Hay Rake, Ill.; Steam Plow; Academy of Sciences; San Domingo.....	209
MECHANICAL PROGRESS.—Tilghman's Stone Cut- ting Process; Improvement in Heavy Ord- nance; Petroleum as Fuel, Test of a 35-Ton Gun.....	210
SCIENTIFIC PROGRESS.—Constant Form of Dan- iel's Battery; Spontaneous Generation; Po- larity of the Compass Plant; Large Induc- tion Coil.....	210
Notes on Amador County; Utilizing the Heat of Exhaust Steam; Missouri Tin Mines; Mexican Mining Words.....	211
MINING SUMMARY; Shareholders' Directory; Mining Stock Market; Market Rates—212, 213 List of Patents; Notices of Recent Patents; To Miners and Farmers; Bay District Horti- cultural Society; An Unknown World; A Great University; New Geyser Field of Mon- tana.....	214
Our Sugar Supply; To Prevent Spring Sickness What Sickness Costs; Eating too Fast....	215
Mechanics Arts College Lectures; A Great Loss; Ore Shipments; Pacific Coals; Fata Morgana at Santa Cruz.....	216
How Chromes are made, Ill.; Caribou, Colo- rado, Southern Pacific Railroad.....	217
DOMESTIC ECONOMY.—Economy in Bread; To Buy Meat; Soups; Domestic Receipts; Me- chanical Hints.....	218
New Publications.....	220

A GREAT LOSS.—The death of Prof. Ju-
lius L. Weisbach, on February 24th, at
Freiberg, Saxony, has inflicted a most se-
vere loss on the scientific and on the social
world. Dr. Weisbach was born in Saxony
in 1810, and received a position as instruc-
tor at the Freiberg Academy in 1833. Here
he rose rapidly in rank and reputation, and
was an "Oberbergrath" at the time of his
death. He was an excellent teacher, a
most kind and genial friend, a prolific writ-
ter, and a most original and intelligent
investigator, particularly in the depart-
ment of hydraulic engineering where he
was unrivaled. His "Mechanics" is a stand-
ard work which has been translated into at
least five languages, three editions of it
having been published in English. We
have no space to speak of his other numer-
ous and excellent writings, of his pre-emi-
nent good qualities in all the relations of
life. His death is a loss to the whole
world, and a particularly hard blow to the
academy which he so long honored. And of
all mourners, none will grieve more sin-
cerely than his many American friends.

MECHANIC ARTS COLLEGE LECTURE.—
Owing to the indisposition of Professor
Carr, no lecture was delivered last Saturday,
much to the regret of the many. There is
now a vacation of two weeks, and the course
will recommence on April 22d, when Prof.
Kellogg will begin his series of three lec-
tures on Greek and Latin, in relation to
English. Then will follow Professors
Pioda, Welcker and Swinton, and finally,
President Durant.

MINERAL SPECIMEN.—Mr. E. Durand, of
this city, has shown us a specimen of a
chrome mineral, which occurs in considera-
ble quantities at the New Almaden mine. It
is of a green color, is brittle, breaking up
into small scales and splinters, and occurs
impregnated in the rock. It is an impure,
clayey silicate of chrome,—chrome ochre.

THE recent flood swept away 25 bridges
in Morgan county, Illinois.

Ore Shipments.

We occasionally receive letters from
miners in the interior, making enquiries
as to what prices can be obtained for
ore in this city. To their enquiries we
are obliged to return unsatisfactory an-
swers. The purchasers of ores here are
unwilling to publish any price list, partly
from the American quality of secretiveness,
and partly from the fact that they fear to
bind themselves by any statement which,
they think, may be taken advantage of.
They say, therefore, when asked:—Send
the ore to us and we will give the most we
can.

This state of things is unfortunate in some
respects. The miner does not like to trust
to the purchaser and the purchaser cannot
trust always to the assays and statements
of the seller. We doubt not that the
result is that less ore or bullion is sent
here than might be sent with profit to both
parties.

The question then arises as to how we
can better the matter,—a question which
it is by no means easy to answer. The
miner would gladly have a scale of prices
given him by the purchaser,—to which the
latter is averse. He says that the ores are
so different in character, richness and
quality that such a scale cannot be fur-
nished. There is of course much force in
these objections,—all the more that the
nature of ores in any given locality is very
apt to change in time, especially as the
mines are in many instances developed to
only a comparatively small extent. Still we
think that a general scale might be fur-
nished with advantage to both parties.

The smelting works of Saxony publish a
very detailed tariff of prices. These are
regulated by the ingredients of the ore,
and their comparative amounts. The ores
are brought in a state of fine powder to the
furnaces and there weighed in the presence
of a representative of the mine and of one
of the smelting works. Three samples are
carefully taken at the same time, one for
the assayer of each party and one for the
government assayer. The latter is merely
referee in case the two assays differ materi-
ally, and his decision is final. The system
works excellently; but then the circum-
stances are entirely different from those ex-
isting here.

A "Nevada miner" asks whether the
establishment of a government assay office
would not be a "good idea." We are
afraid that it would not have the desired
results, even if we were sure of having a
proper person as assayer, of which fact we
cannot be certain until our civil service
has undergone the needed reform. At
present the buyers and sellers must make
the best contracts they can with one an-
other, until a vigorous competition brings
a change. We believe that the Auburn
Mill at Reno, however, publishes a scale
of prices, and we believe that Mr. Selby
and others here would do well to follow
the example.

During the three months just ended,
quite large shipments have been made to
this city, as shown by the following table,
where we give the amounts for this year
and for the corresponding months of 1870.

	ORE.				BULLION.			
	Interior.	South.	Interior.	South.	Interior.	South.	Interior.	South.
1871.	tons.	lbs.	tons.	lbs.	tons.	lbs.	tons.	lbs.
January	225	900	1	1,000	458	1,800	138	1,400
February	166	900	—	—	350	1,900	140	900
March	256	1,000	19	1,000	432	300	176	1,600
	648	800	21	—	1,242	—	455	1,900

Totals 669 tons 800 lbs. 1,697 tons 1,900 lbs.
Average per month: Ore, 223 tons 266½ lbs.; Bullion,
565 tons 1,966½ lbs.

	ORE.				BULLION.			
	Interior.	South.	Interior.	South.	Interior.	South.	Interior.	South.
1870.	tons.	lbs.	tons.	lbs.	tons.	lbs.	tons.	lbs.
January	169	1,660	4	400	—	—	46	900
February	109	250	—	—	—	—	47	1,500
March	119	326	19	200	45	1,000	26	1,000
	397	230	23	600	45	1,000	119	1,400

Totals 421 tons 830 lbs. 165 tons 400 lbs.
Average per month: Ore, 140 tons 943½ lbs.; Bullion,
55 tons 133½ lbs.

It will be seen from the above that there

has been a gratifying increase especially
in the amount of bullion, which last is due
to the erection of smelting works in the in-
terior. Of the bullion, one Nevada com-
pany alone has shipped at least 526 tons.
Of the ore, 330 tons were shipped as "cop-
per ore," and one lot of 8¼ tons came from
Mexico.

Of the new smelting works which were
to have been started in this city, we have
heard nothing definite of late, although a
lot of land was purchased some time ago at
Hunter's Point, and preparations are said
to be going on. Mr. Selby has, in the
meantime, been active in securing ore and
bullion, and has contracted with parties in
Nevada and Utah for their silver lead.

During the last quarter there have been
exported from this city 204 tons of silver
ore, 70 tons of lead ore, 350 tons of copper
ore and 87 tons various. Total, 711 tons.

A not unimportant item of our exports
during the quarter is that of 656½ tons of
lead to New York.

Ores from Eastern Nevada.

Since the above was written, we see that
the State Mineralogist of Nevada has pub-
lished his report for the years 1869 and
1870. We have not seen the report itself,
but the Sacramento Reporter publishes
therefrom tables showing the amounts of
ores and metal shipped from Eastern Ne-
vada during those years. We take these
data and rearrange them in tabular form to
suit our columns, giving the amount of ore
shipped to California in 1869 and 1870, and
the amounts of bullion shipped to the East
and to the West in 1870.

	Ore Ship'd to Cal.				Bullion Ship'd in 1870.			
	1869.	1870.	West.	East.	1869.	1870.	West.	East.
January	6	186	382	707	59	1,247	—	—
February	7	796	202	788	160	651	—	—
March	18	—	399	1,641	91	782	112	1,937
April	149	1,266	609	303	46	257	168	794
May	60	848	469	1,327	139	1,346	191	807
June	89	656	480	262	136	246	460	303
July	86	1,010	682	190	153	1,967	388	1,340
August	91	717	640	845	291	700	238	1,243
September	122	1,620	448	1,182	228	490	31	183
October	176	37	1,033	771	164	1,728	241	994
November	362	837	778	593	487	70	131	1,828
December	313	1,562	—	—	—	—	—	—
	1,473	1,535	6,015	609	1,902	1,484	1,964	1,429

Totals 7,489 tons 144 lbs. 3,867 tons 913 lbs.

The figure with regard to the ore ship-
ment "show two interesting facts: First,
that about all the ores shipped from East-
ern Nevada for reduction comes to Cali-
fornia, either to be worked in San Francis-
co, or to be shipped thence to Europe. The
other fact is that the increase in the yield
of the mines of Eastern Nevada since the
opening of the railroad has been nearly
600 per cent. It will be seen that in 23
months 9,489 tons of ore were shipped,
worth on the average at least \$100 per ton,
or in the aggregate, \$948,900." These last
figures should read 7,489 tons and conse-
quently \$748,900. "During the whole
period (1869-1870) only 3,885 lbs. of ore
were shipped eastward."

In 1869, 51 tons 485 lbs. bullion are
given as shipped west, making the bullion
total 3,918 tons 1,398 lbs. "Here we have
3,918½ tons of metal shipped last year"
(and in 1869) "worth about \$250 per ton
on the average, and in the aggregate \$979,-
625. It will be noticed that while the
shipments in this direction have been con-
stantly on the increase, shipments to the
East have been diminishing since June."

In the Press of January 7th, we pub-
lished a tabular statement of all the ores
and bullion received in this city for 1870.
By a reference to this it will be seen that
the above figures are considerably higher
than ours. Our amounts were taken from
the books of the Central Pacific Company
and were carefully revised at the end of
the year. How the State Mineralogist has
obtained his, we do not know, but we are
inclined to think that ours must be the
more correct.

LAST Thursday, the 50th Anniversary of
the Declaration of the Independence of
Greece from the Ottoman Porte, was ap-
propriately celebrated by the Greek resi-
dents of this city.

Pacific Coast Coals.

We are permitted to publish the follow-
ing analyses of coals from California, Ore-
gon and Alaska, made by C. M. Cresson,
M. D., of Philadelphia. We represent the
coals by the initial letters of the localities:
A., Alaska, 7-foot bed; C.B., Coos Bay,
Oregon; S., Seattle, Washington Territory;
B.D., Black Diamond, Mt. Diablo; B.B.,
Bellingham Bay, Oregon [Washington
Territory.—Eds. Press.]; C.A., "California
Anthracite."

To these Dr. Cresson adds: C., Cumber-
land coal; P.G., Penn Gas coal of Western
Pennsylvania; A., a variety of anthracite
from Eastern Pennsylvania; P., Crude
Petroleum from Pennsylvania.

The first column shows the percentage
of coke; the second, of volatile matter, the
third, of ash; the fourth, the number of
pounds of sulphur in a ton of the coal; the
fifth, the relative heating powers—how
many pounds of water are evaporated by
one pound of coal; the sixth column esti-
mates the relative value of a pound of each
of these coals, the Penn. Gas coal being
assumed as a standard.

	Coke.	Vol.	Ash.	Sul.	H.P.	R.V.
A.	60.0	40.0	12.3	7.96	7.94	.641
O.B.	60.7	39.3	6.2	7.35	10.14	.691
S.	63.0	37.0	16.6	8.57	8.38	.571
B.D.	51.6	48.4	8.0	8.73	8.38	.571
B.B.	67.0	33.0	15.0	6.61	10.68	.721
C.A.	88.6	11.4	5.0	6.12	9.70	.661
C.	88.2	11.8	3.2	3.52	13.92	.948
P.G.	62.5	37.5	3.2	13.78	14.67	1.000
A.	95.6	4.4	7.2	—	7.40	.504
P.	—	—	—	—	20.90	1.424

The specimens from which these analyses
were made, are in marked contrast with one
another. The Alaska coal is a dirty-looking
lignite-like coal, which no one familiar
with Pennsylvania and Illinois coals would
expect to compare favorably with the
shiny, rich-looking Black Diamond, which
nevertheless is very little if at all its super-
ior. The Seattle coal looks very much
like some of our lowest beds in the old
Coal Measures, and the Puget Sound
anthracite is, evidently enough, made out
of it, by volcanic agencies driving off 10 or
15 per cent. of volatile matter. The low
percentage of ash in this anthracite makes
it unlikely that the changed bed is the
same with that from which the unchanged
coal comes, although the inference is not
a necessary one; for the percentage of ash
in the same bed varies with every square
mile of its area, and almost with every
square rod; as, indeed, the theory of the
origin of coal beds would lead us to antici-
pate.—U. S. R. & Min. Reg.

Fata Morgana at Santa Cruz.

The Santa Cruz Sentinel, of April 1st,
says: On Wednesday morning last, one of
the finest mirages that it has been our good
fortune to see made its appearance in our
bay; in fact the picture partook more of
the Fata Morgana than mirage. Standing
on the bluff, near the light-house, we
watched the beautiful scene for hour after
hour. It was one of those scenes which at
times makes its appearance on the coast of
Messin. The entire beach, with its narrow
line of yellow sand extending from Point
Pinos entirely around to this place, and
the many landing places and towns became
visible, looming up like gigantic castles.
The houses in Monterey, twenty-two
miles distant, appear to hang in the air,
and as if gently rocked in a sea of glass.
The mountains back of that city, and the
light-house, formed a splendid back-
ground. Far away on the right could be
seen an ocean steamer, which, at times,
seemed to be four or five stories high, with
heavy roll plowing her way to the Golden
Gate, and the bay towards Moss Landing,
the buildings of the landing constantly
growing taller and taller, the steamer Mon-
terey making her way to this city. In the
immediate fore-ground were five or six
schooners tacking in different directions,
and passing and repassing each other, ad-
ding to the beauty of the scene. We
watched this shifting kaleidoscope, while it
changed into every imaginable shape. The
line of sand beach became rough, and
waves like those seen on the intervening
bay seemed to roll along the shore. The
opposite shore ran up massive columns,
supporting a stupendous entablature,
which grew wider at the top, then
changed and represented beautiful water-
falls or precipitous bluffs. This would
give place to a city, whose magnifi-
cent buildings would appear to rock, then
rising, would remain a moment suspended
high in the air, then disappear, while an-
other picture was forming on the water's
level. A gentle breeze was blowing at the
time, and the day was warm and clear.

ONE firm in Boston does an annual busi-
ness of \$800,000 in proprietary medicines.

How Chromos are Made.

The impatience of a German washerwoman is said to have led to the invention of lithography, and this history of the art to have begun at Munich about 1793. The first patents relating to chromo-lithography bear the date of 1835, but in the last 34 years the art has made a wonderful progress.

We give this week another fine engraving from one of Prang's excellent chromos. It is entitled "Launching the Life Boat," and is after a painting by Edward Moran of Philadelphia. Our readers will remember the picture of "Sunset on the Coast," by De Haas, which appeared in the Press of Feb. 11th. With their success with these two productions the publishers are well content. They do not hesitate to say (we quote) that in the reproduction of these two pictures they have given to the public two master-pieces of American art, such as have never before been approached by the hand of the chromo artist. Although Mr. Moran's picture is in perfect contrast to Mr. De Haas', the two are nevertheless most excellent companion pieces. While the latter is glowing with color, the former is

gray and sombre. Here the storm is yet raging in its fury, and the heavens are covered with black clouds. There it has already spent its force, and through the riven cloud-veil a flood of light is bursting upon the destruction which the storm has wrought. There the work of destruction is completed; the vessel which once bore hopeful hearts towards an unknown goal has stranded; the hopeful hearts, mayhap, are no more; the struggle is over; the brig is abandoned, and no sign of life is to be seen, far or near, with the exception of a few sea gulls and some sails showing faintly on the distant horizon.

Here the struggle is yet going on. The vessel in distress in the offing, the lifeboat just about to be launched, the crowds of men thronging the shore, and eager to extend a helping hand to their suffering fellowmen,—all these tell a story which, although totally different, is yet a complete counterpart of that told by the "Sunset on the Coast." While one may be called the opening scene of the tragedy, the other illustrates its close.

Both of these fine chromos may be seen at the art gallery of Messrs Snow & Roos, at 21 Kearny street in this city.

We have before promised a description of how chromos are made, which promise we now fulfill, using Mr. Prang's "Chromo," therefore.

A lithograph, as our readers are aware, differs from a steel engraving and a wood cut, by the fact that it is printed from a stone, and from a perfectly smooth surface. In a steel engraving the impression is produced from an indented plate. That is, the steel is cut into with a sharp instrument, the incisions are filled up with ink, the paper is pressed into them, and thus an impression is secured. In a wood cut, on the contrary, as with common type, the impression is made by the ink deposited on a raised surface; all the parts that are intended to be blank in the picture having been cut away. An entirely different method obtains in lithography. Here there is neither raised nor sunken surface; everything, as one writer has expressed it, is as smooth as a politician's ante-election promises.

A lithograph is printed on large slabs of stone,—known as lithographic stone,—quarried in Bavaria, containing carbonate of lime, which,

as is well known, has a strong affinity for oils. These slabs are three or four inches in thickness; before they are used they are polished to their utmost capacity, and they readily take an exquisite finish. If it is desired to print a portrait, for example, the drawing is made directly on the stone, either with a lithographic crayon or with a pen charged with lithographic ink. A lithographic pencil is simply a hardened piece of fatty matter, colored black in order to show the marks; and lithographic ink is a black fluid charged with oily ingredients. The oil in the ink or pencil forms a chemical union with the line of the stone, and the application of certain acids fixes it indissolubly. It only remains, now that this result has been reached, to fill up the pores of those parts of the stone which were intended to be blank, with gum, in order to prevent the ink when applied afterwards from adhering to them. This done, which gives a certain enamel to the blank spaces, the stone is placed on a press and wet with a sponge. The ink, or color, is then applied with a roller. Of course, the gummed portions of the stone, having retained the moisture from the sponge, reject the oily color; whereas the drawn or oily

viewed at a short distance, could be detected as an imitation. Prang's chromos, seen at distances of a few feet, have deceived the best artists in the country, who quite as frequently select his work, as the painting, for the original picture.

It may strike the reader as extraordinary that it is possible in a picture which has gone through the press between twenty and forty times to be able to obtain that exactness in "registration,"—to use a technical phrase,—which enables the workmen to print the color in precisely the right place every time. For any one can readily see that if the paper were to shrink a little, or if the pressman were not to hit the exact spot, the eyelashes of the "Barefoot Boy," for instance, might be planted in the center of his pupils, or promoted to the rank of brevet eyebrow. But this difficulty is ingeniously overcome in chromo-lithography.

This first process in making a picture, is to trace a skeleton outline, not of the figure or composition only, but of the shade and colors; and this is transferred to every stone used in the production of a chromo. The artists, therefore, know where to rub in the greasy drawing,

Caribou, Colorado.

A correspondent of the Colorado Herald gives some information concerning the mineral deposits of this place, which, if correct, would make it a very interesting field for investigation, and would give promise of future rich developments.

According to the letter, between that place and Long's Peak, which is near the northern boundary of Boulder county, there are four distinct and entirely different metallic formations, viz: silver, lead, gold and copper. First, along the southern side of Grand Island District is the Caribou silver belt. North of that, some six or seven miles, is a group of lead veins, which can be traced from the mouth of the North Boulder gorge, where the Asbestos lode is located, in an easterly direction, along the mountains of the Four Mile, for about eight or ten miles—the veins preserving their lead character until they wholly disappear. The amount of silver which they carry averages as much as galena ores usually contain.

Next in order come the mines of Ward District, which are worked almost exclusively for gold, the accompanying metal being principally pyritous iron, consequently not valuable at present. This group of gold-bearing veins also appears very close to the foot of the range, and is traceable in an easterly course to "Gold Hill," where it terminates in a cluster of remarkably rich lodes. Adjoining Ward, and further on to the north, is found the copper belt of St. Vrain, which is first noticed at the head of that stream, cropping out along down its valley and adjacent mountains, until it is forced to disappear beneath the sedimentary rocks at the edge of the plains. The veins of this belt are called the great

copper deposits of Colorado, and will eventually be worked for copper as the principal product, though some of them are rich in silver. Sulphur of copper is the predominating ore.

The mines of Jamez Creek, lying between the Ward and St. Vrain belts, at their eastern extremities, partake of the nature of both, or a curious mixture of almost all metals and minerals, the veins running in all directions; and is what might be termed a pseudo formation when compared with the systematic character of the others.

The Southern Pacific Railroad.

We learn on good authority that the work of extending the Southern Pacific Railroad beyond Gilroy will commence on Monday next. Mr. Sturtevant, who was the energetic and able Superintendent of Construction on the Central Pacific, began grading at Gilroy on that day with a force of 500 men, and as fast as the grade is completed the track will be laid. The section of 20 miles required by Act of Congress to be constructed within the year ending in July next, will speedily be completed, and the Company may go beyond that, probably building as much as 50 miles south of Gilroy in time to transport this year's grain crop.

We cannot learn what route will be followed below Gilroy. Two lines have been surveyed and located—one through Pacheco Pass, and one through Panoche Pass via Hollister; but the Company has not yet decided between them. The latter route offers 30 miles of level grade before the hills are reached; the former only 10 miles. The more rapid progress in road building, therefore, could be made by the Panoche route, which would also better utilize the Gilroy road. But whichever route may be decided upon, the public will be gratified with the assurance that the road is to go ahead.—*Bulletin.*



LAUNCHING THE LIFE BOAT. BY MORAN.

portions of the stone, having rejected the water, retain the greasy ink. The paper is then put on, and the impression taken.

In making a plain lithograph, this is the whole process and it is repeated as often as an impression is taken—every time, the stone must be sponged before it is inked. A colored lithograph is first printed as a plain proof, and the colors are printed on the black surface afterwards. This is what Mr. Prang terms a "half-chromo." Such colored lithographs may be, and often are, quite pretty pictures, but they have no depth, and no "feeling of oil" about them—they are good enough for an undeveloped taste, and good only as far as they cultivate a love for something better and more beautiful.

Chromos, on the other hand, "full chromos," are produced by pure color—by carefully printing tint over tint, color over color, here a little, there a little, now deepening, now heightening, now shading, now brightening—following the method although not the tools of the artist with the brush and palette. The first color is commonly a light ground tint which covers all the print, or most of it, excepting, for example, in a figure piece, the spots to be covered by the eye, or to be rendered in white, which a gray or pinkish ground tint would spoil. The next, and every succeeding stone,—up, sometimes, as high as forty-three stones,—each have a separate color, which is applied, as the subject and stage of progress indicates, either to a minute portion of the picture or to nearly all of it. This process is continued until all the effects of the original have been produced; and no chromo is entitled to be regarded as a masterly one which,

in order to print a shade, and where to apply the gum in order to fill the pores of such stones—and know it with an infallible accuracy, in which guessing, or skill of hand has no part whatever. In the same way the pressman, if he is a skillful hand,—and no others are employed,—by simply making sure that he always puts the sheets into the needle-holes of the first impression, is sure to hit the mark in his work; but it depends on his sobriety, evenness of temperament, mechanical skill, knowledge of colors and trained eyes whether all the impressions are of equal value. For, if he should lay on the color too thickly or too thinly, the blemish or defect—the excess or lack of tint—would be instantly detected by the practised eyes of the master in the completed work. After the picture has gone through the press it is embossed, or has imparted to it that appearance of being painted on canvas which every one must have noticed on Prang's chromos. The "loaded touches" of the brush are excellently imitated, and the effects of such tricks of the artists are well rendered in the chromo. The picture is then gummed to pasteboard, cut, trimmed, varnished, touched up by the brush if defective, and sent to the store-room for sale. By a visit to Messrs. Snow & Roos, one can easily satisfy himself how accurately and excellently chromos are made.

ROBERT HOE is said to be making arrangements to establish a manufactory of his largest presses in England, on account of cost of material and price of labor.

DOMESTIC ECONOMY.

Healthful Economy in Bread.

Many people who now use fine flour altogether, would employ unbolted flour universally if it could be as readily obtained as the former and perhaps a little cheaper, as they would thus be able to combine economy with the true principles of dietetics. Millers generally charge as much for unbolted flour, as for that which is bolted; but there is no reason why they should do so. Unbolted meal ought to be considerably cheaper per sack or barrel, than that which is subjected to extra labor, and diminution by having a large proportion of that which possesses the least pecuniary value taken from it.

But there is a way to avoid this imposition—by simply buying the middlings (best shorts) and good bran which have been taken out by the miller, and mixing them together, in the same proportions in which they would exist if the wheat had been ground up without bolting. There is but little labor in mixing, while the cost of the mixture to make a given quantity of bread, will be much less than though the same quantity was made from fine flour alone.

No harm will arise, even if an undue proportion of bran finds its way into the flour, and any good domestic bread maker may produce as light, sweet and wholesome bread from such a mixture as can be obtained from the best bolted flour. Such bread is far more wholesome than the common white bread, and to dyspeptics it is indispensable. It is more digestible, and of the phosphates, so essential to the stamina of the system, it contains 17 pounds in 100; while flour, bolted to the degree of "superfine," contains only 6 pounds in 100—nearly three to one. These facts are of the utmost importance to every person, and deserve far more consideration than is usually allotted to them.

How to Buy Meat.

Dr. Letheby gives the following description of good and bad meats, with which his duties as sanitary officer in the city of London have required him to be very familiar:—Good meat is neither of a pale pinkish nor a deep purple tint. It has a marbled appearance, from a ramification of little veins of intercellular fat; and the at of the internal organs especially is firm, hard and suety, and is never wet, whereas that of diseased meat is soft and watery. The feel of healthy meat is somewhat elastic and hardly moistens the finger. Diseased meat is soft and wet. Good meat has but little odor, and this is not disagreeable; whereas diseased meat smells faintly cadaverous. Good meat bears cooking without much shrinking or losing much of its weight; but bad meat shrivels up and boils to pieces; this is due to the larger proportion of watery and gelatinous material, and the absence of fat and true muscular substance in the meat. Under the microscope the fibre should be clear and well defined, and free from infusorial animalcules; while that of diseased meat is sodden and tumid, as if it had been soaked in water, the transverse streaks are indistinct and wide apart, and animalcules abound in it.

Delicate Hands.

"Why don't my hands look and feel, as it would seem that the perfect Author of all things would have them?"—How many a young man and woman have asked this question; and are troubled to know why it is that some persons have such bloodless hands, perfect nails—so free from *hang nails*, as they are called—while their own hands look so much like duck's feet or bird's claws.

All sorts of cosmetics, the most penetrating oils, rubbing and scouring the hands, paring and scraping the nails, and cutting round the root of the nails, are resorted to, in hopes of being able to make their hands appear natural; but all avails nothing, and many a poor hand is made to perform all its manipulations *incognito*. About the piano, in the social party, in the house and

in the street, the hand—the most exquisite, or what should be the most beautiful and useful part of the human frame—is *gloved*; and why? Because it is not fit to be seen.

Now, we are about to tell you of a positive cure. In the first place, never cut or scrape your finger nails with a knife or scissors, except in pairing them down even to the end of the fingers.

Secondly; use nothing but a good stiff nail brush, soap and water, and rub the nails and hands briskly with these, every morning the *year round*.

In the third place, I would have you know that surfeiting will invariably produce heavy burning hands. An impure state of the blood will manifest itself in the hands sooner than in most other parts of the body. If you have bad hands, be assured that the quantity or quality (or both) of your diet, is wrong.

If you *try* to profit by these suggestions, you will, before one year expires, be no longer ashamed of your hands.

Soups.

Generally the American people are not fond of soups; perhaps because they are seldom well made, and when they are, they are often complicated and expensive, requiring much money, time and attention to prepare them. These difficulties are avoided in the following receipts, and a few trials will enable any one of ordinary understanding, who will follow the directions, to produce cheap, wholesome and agreeable soups, without shins, knuckles, scrags, bacon or drippings.

PEA SOUP.—Put one pint of split peas, which have been previously soaked in cold water four hours, into two quarts of pure soft water. Distilled, or filtered rain-water is preferable when it can be obtained. Let them boil for one hour, then add one carrot, one parsnip, one turnip, two onions, a small head of celery and a little mint, all cut small, and boil the whole another hour. Strain the soup from the vegetables, and thicken it with a little Indian meal, previously mixed in cold water; boil the whole for ten minutes more, and serve in a tureen with toasted or plain wheat-meal bread. (Mix the vegetables well, and put them into a mold or a basin and then into a vegetable dish, and serve it with steamed or baked potatoes, which are better than when boiled in water.)

BEAN SOUP.—Wash and pick one pint of white beans; steep them twenty-four hours in pure soft water, put them into a stew-pan (earthen, enameled is best), set them on the fire in two quarts of water, let them boil for two hours, then add two onions, one parsnip, one carrot, a little parsley and thyme cut small, a little cold boiled rice, and a little salt. Boil the whole gently for another hour, and serve it the same as pea soup.

BARLEY AND BREAD SOUP.—Take three ounces of barley, one and a half ounces of stale bread crumbs, one and a half ounces of butter, one half ounce of salt, and one quarter ounce of parsley. Wash and steep the barley for twelve hours in one-half pint of water, to which a piece of carbonate of soda, the size of a pea, has been added; then pour off the water not absorbed and add the crumbs of stale bread, three quarts of boiling water and the salt. Digest these in a salt-glazed covered jar, in the oven, or boil them slowly in a well-tinned covered pan, for from four to six hours, adding the chopped parsley, with the butter, thirty minutes before the expiration of the time of boiling.

HOTCH-POTCH SOUP.—Take four large turnips, one pound of carrots, one onion, one lettuce, and parsley. Put four quarts of water into a pan, set it on the fire, and put in the carrots and turnips, part of which must be grated, and the remainder cut in small square pieces with the other vegetables, all cut small; season, and let all boil very well together slowly. Young green peas may be added, part of them to be put in with the other vegetables and the remainder about an hour before the soup is ready.

STUFFING FOR FISH.—Butter slices of stale bread upon both sides; saturate them with wine, catsup, or cream, as preferred. Cut again in smaller slices, and lay inside the fish.

TO SAVE FRUIT WITHOUT SUGAR.—Put in wide-mouthed bottles; fill up with cold spring water. Put them in a vessel of water up to the neck; boil half an hour; tie bladders or oil-skin over tight, or cork and seal while hot. Let them set until cold. Keep in a cool place. Use as soon as opened. Pack away around while boiling, to steady them.

Domestic Receipts.

OINTMENT TO SOFTEN THE HANDS.—One and a-half pound of mutton tallow, one ounce of tallow, one ounce of camphor gum, one ounce of glycerine, melted; when thoroughly mixed put away to cool. Rub on at night.

TONGUE TOAST.—Take cold boiled tongue, mince it fine, mix it with cream, and to every half pint of the mixture allow the well beaten yolks of two eggs. Place over the fire and let it simmer a minute or two. Have ready some nicely toasted bread; butter it, place it on a hot dish, and pour the mixture over. Send to table hot.

A **GOOD DISH** may be made, for those who like pork, as follows:—Take slices of home-fed pork and set them over a good frying fire in the spider with a little salt. Core and quarter some nice tart apples and add them to the pork, covering the spider with a lid. Cook till all is of a nice brown and serve hot, with the apples spread upon the slices.

TO PRESERVE FIGS.—Take the fruit when not quite ripe. Soak for ten or fifteen minutes in weak, warm soda water to remove the skin; or peel thinly with a sharp penknife. To one pound of figs use three-quarters of a pound of sugar. When the syrup is made, put in the fruit, and let it boil until half done; take them up, and spread on a dish, and put in the sun. Let the syrup simmer slowly, always carefully removing any impurities that may rise to the surface. When clear, put in the figs; let them cook until transparent, taking them out separately when done. Set in the sun again; if the syrup is not clear, skim again; do not let it boil away too much. Put the figs in jars, and when the syrup is cold, pour it over them.

The small kind, called the Celestial fig, is better unskinned.

Mechanical Hints.

GILDERS' COMPOSITION FOR FRAMES.—The composition at present in use is composed of best black glue, common resin and linseed oil. Some use resin oil, others boiled linseed oil. Nearly every manufacturer has a little change in the proportions. It is a useful material for many other purposes to which it might be applied were its mode of manufacture known. Take 10 lbs. of best black glue, boil it in the usual manner, but with very little water. It should be at least four times as thick as the glue used for general purposes. Take 6 lbs. of common resin, and pound to dust; add linseed oil, or resin oil, to form a thick paste with the dust; dissolve with heat, allow it to cool to about 212°, then add the hot glue together; combine it well. Have sifted whiting prepared, and combine the whole as in making bread; form it into cakes, and allow it to cool; at any time by the application of steam or heat, this composition may be brought into use.

WELL WORTH KNOWING.—It is a matter worth knowing that a tree felled while in full leaf in June or July, and allowed to lie with their tops and lops on till every leaf has fallen, are then very nearly dry, as the leaves will not drop of themselves till they have drawn up and exhausted all the sap in the tree. The time required is from a month to six weeks, according as the weather is dry or moist. Trees so treated will never push again, or show leaves, as the stocks of winter-felled timber almost invariably do if allowed to lie, and thus prove that they have lost that vitality which the latter retains. The floor of a mill laid with poplar so treated and cut up and put in place in less than a month after the leaves fell, has never shown the slightest symptom of shrinkage or other indication of not being perfectly seasoned.

BILLIARD BALLS may be colored red by first steeping in a mordant of nitro-hydrochlorate of tin, and then plunging them in a hot decoction of brazil or cochineal; afterwards placing them in cold water. Experiments will teach the proportions, which influence the shade of color. Tiu mordant—Mix four oz. hydrochloric with one of nitric acid and one of water; dissolve in it, by small portions at a time, two drachms of grain.

TURNERS' CEMENT.—Take Burgundy pitch and resin, one pound each; yellow wax, two oz.; whiting, one ball. Melt in a pot over a slow fire, pound the whiting and add it gradually to the other ingredients when melted. When thoroughly mixed, mould it into balls or sticks.—*Campin's Turning.*

LIFE THOUGHTS.

ENDEAVOR for the best, and provide against the worst.

How to BE NOBODY.—Spend your leisure hours in a drinking saloon.

THE best humor is that which contains the most humanity.

LIFE is hardly respectable when it has no generous task, no duties or affections that constitute an object for loving.

In youth we should cultivate mind and character, that we may reap the ripened fruit thereof in old age.

HEROES may destroy tyrants, but it is wisdom and law that prevent tyranny and oppression.

In every pursuit, whatever gives strength and energy to the mind is favorable to the interests of knowledge and virtue.

WHATEVER limits or enfeebles the power of the mind, is hostile to the best interests of human life.

THE BEST WAY to acquire the faculty of being at home in the best society, is to stay at home with one's wife and children.

REFINED homes are the end of civilization. The work of all races for thousands of years is represented by the difference between a wigwag and a lady's parlor. It has no better result to show.

GENIUS in a man to-day is individualism of character and effort, the power one here and there is seen to have to light his own fire and drive his own engine.

AVOID those who take pleasure in exposing others to contempt by jeering, mocking, or mimicking. Keep off from such as from the heels of a horse that kicks all near him.

FRIENDSHIP, love and piety ought to be spoken of only in the rare moments of perfect confidence be mutually to understood in silence.

SPURGEON says nobody is more like an honest man than a thorough rogue.

If a man sleighs all day, can he be said to kill time.

What is Life?

As we sit at our table to-night, thoughts of the past, present, or future crowd upon our mind, and we naturally ask, what is life? What is there in this world of sin and sorrow that should claim our attention, or cause us to have one wish to continue here? We look around, and we behold suffering and sorrow; there lies the infant baby, who never committed one sin, writhing in pain; over it bends the kind mother weeping and feeling as none but a mother can feel. Youder we hear a wailing which comes from around the couch of the dead. Sickness, sorrow, anxiety, and fear stalk over the earth and meet us on every hand. Why should we not ask, what is life? and the answer comes from the heart, life is one continual scene of sorrow. But the grave awaits us, and in that house which God has prepared for all his suffering children the weary can find rest.

WHAT IS A MAN?—No man is a man till he is tried; till he has passed through the ordeal: through deep water and scorching fires. A man surrounded with comforts, friends and relations, food and raiment; whose barns are filled with plenty, and whose presses gush out with new wines; who eats his fill; sits and reads, doles about taking his ease and pleasure; smoking his pipe and chewing his cud; is he a man? Far from it. A man is not a man until he is proved—has passed the ordeal—drank the bitter cup; risen above life's conflicts; mounted the billows of the sea.

Few traits of character are more valuable than the possession of good temper. Home can never be made happy without it. It is like flowers springing up in our pathway, reviving and cheering us. Kind words and looks are the outward demonstration; patience and forbearance are sentinels within.

TRUE COURAGE.—A learned man has said that the hardest words to pronounce in the English language are, "I made a mistake." When Frederick the Great wrote to the Senate, "I have just lost a battle, and it is my own fault," Goldsmith says, "His confession showed more greatness than his victories."

DR. JOHNSON said, when in the fullness of years and knowledge: I never take up a newspaper without finding something I would have deemed a loss not to have seen; never without deriving from it instruction and amusements.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Bone, Pearl, or Pyroxaline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner California and Leidesdorf streets,
SAN FRANCISCO.
7v16

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c., Orders left with C. W. WITTE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.
24v21-3m

JOHN ROACH, Optician,
Has removed from 822 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
25v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONOEE Cashier.
19v16-3m

BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO.
15v12-3m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
25

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garrett's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14U SAN FRANCISCO

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Rush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Doled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-4y

DR. F. HILLER,
Homoeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco.
m4-6m

Eastern Advertisements.

EVERETT HOUSE,
Cor. Clark & Van Buren Streets,
CHICAGO.

This Hotel is centrally located,
Only Three Minutes walk from the
Court House, Post Office, and various places of amusement.

The Chicago, Rock Island and Pacific,
and the Michigan Southern Rail
Road Passenger Depots,
are within one block. The house is NEATLY AND ELEGANTLY FURNISHED THROUGHOUT, and travelers from California, Oregon and the Territories, will find the

Accommodations Equal to any in the City,
with the assurance of a hospitable greeting, and the best possible treatment.

TERMS—\$2.50 per day.
BYRON A. BALDWIN & CO., Proprietors.
2v22-4 c/mims

BABCOCK
FIRE
EXTINGUISHER.

Over 300 Actual Fires put out with it. More than \$4,000,000 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record." **F. W. FARWELL, Sec'y.**
3v22-3ms 122 Washington st., Chicago.

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

Hydraulic
ENGINEERS,
AND
Manufacturers
OF THE Per cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. mail-6m

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,
For the Variety of Places and Purposes to which it is adapted, the Readiness with which it sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.
Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 and 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice?
mail-3m

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

SAFES
BANK LOCKS.
VAULT WORK.
HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

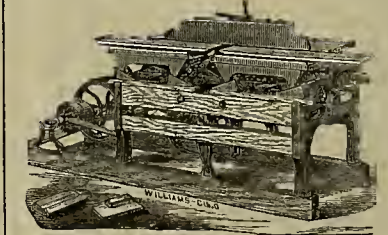
- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue and Prices. mail-6m

THE FORSMAN
Iron-Old French
Butt-Stone Mills
Are the best for Grinding or Peeling
Wheat into flour and better work with
the same power than any other.
We build complete
MILLS, including
all the machinery
and fixtures
for the same.
Send for Circular.
J. A. FORSMAN & CO.
No. 10 South Canal St.
CHICAGO, ILL.

Improved Universal Wood Worker



FOR
Jointing, Babbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mail-6m

Witham Glass and Queensware Company.
IMPORTERS, MANUFACTURERS AND DEALERS IN
China, Glass and Queensware, Lanterns, Looking Glasses
&c., &c. 113 N. Main Street, St. Louis Mo. The
celebrated Novelty Lanterns always on hand. 3v22-3ms

LEONARD'S
Patent Vapor Jet Burner and
Hand Lamps.
Also, Portable Gas Burners and
FIXTURES.
County and State Rights for sale.
Send for Circulars.
Manufactured and for sale by
D. LEONARD & CO.,
109 Calhoun Place, Chicago, Illinois.
3v22-3ms

Travelers' Guide.
CENTRAL PACIFIC RAILROAD.

Passenger	Express	APRIL 1,	Express	Passenger
Sunday	Train	1871.	Train	Sundays
excepted	Daily.		Daily.	excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:58 P.M.
7:58 P.M.	7:30 A.M.	San Jose.....	5:40 P.M.	
9:25 P.M.	12:10 P.M.	Stockton.....	1:45 P.M.	8:35 P.M.
	2:10 P.M.	Sacramento.....	11:15 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.....	9:10 A.M.	
	9:00 P.M.	Sesma.....	4:20 A.M.	
	2:20 P.M.	Sacramento.....	11:45 A.M.	
	5:25 P.M.	Colfax.....	8:45 A.M.	
	1:15 A.M.	Reno.....	1:00 A.M.	
	9:10 A.M.	Winnemucca.....	4:05 A.M.	
	12:00 M.	Battle Mountain.....	1:25 P.M.	
	4:40 P.M.	Elko.....	5:45 A.M.	
	6:10 P.M.	Ogden.....	5:15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *6:30, 8:00, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 8:45 and *11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).
LEAVE BROOKLYN, *5:15, *6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55 and 6:25 p. m.
LEAVE OAKLAND, *5:25, *6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05 and 6:35 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:30, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:30, 11:15 and 5:30 to Fruit Vale only).
LEAVE HAYWARD, *4:30, 7:00 and 10:45 a. m., and 3:30 p. m.
LEAVE FRUIT VALE, *5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

*Trains do not run Sundays.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.
CALIFORNIA PACIFIC
RAILROAD &
STEAMER NEW WORLD
VIA
VALLEJO.

The following time will take effect

Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).				
New World	Trains	Trains	Trains	
Leaves	Arrive at	Arrive at	Arrive at	
S. Francisco.	Callisto.	Sacramento.	Marville	
9:00 A. M.	12:45 A. M.	12:30 A. M.	2:45 P. M.	
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.	

ON SUNDAYS.

8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.
------------	-------------	------------	------------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leave	Callisto.	Leave	Arrives at
Marville.	Callisto.	Sacramento.	S. Francisco
5:30 A. M.	7:30 A. M.	7:30 A. M.	7:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:00 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 315 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
L. C. FOWLE, General Freight and Passenger Agent, Vallejo October 1, 1870.

PENNSYLVANIA CENTRAL R. R.
AND
Pittsburgh, Fort Wayne and Chicago R. R.
—IS—
61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York,

WITHOUT CHANGE!
With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.
Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers
will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.
All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHANGE.
Through Tickets via, this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.
T. L. KIMBALL, Gen'l West. Pass. Agt.
Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,
4v22-1y San Francisco, Cal.

Sonora Hotel,
T. BRODIGAN,.....Proprietor
Best Meals and Beds in Sonora, Cal. fe25-3m

NEW BOOKS.

FARM IMPLEMENTS AND FARM MACHINERY, and the Principles of their Construction and Use: with simple and practical Illustrations of the Laws of Motion and Force as applied on the Farm. With 287 Illustrations. By John J. Thomas. New York: Orange, Judd & Co., 245 Broadway. 8vo. pp. 302.

This publication contains very much of general interest and value while intended more especially for the farmer. It commences with the leading principles of mechanics which are applied every day by the farmer, and presents these in a simple and interesting form. They are important in teaching the reasons of success and failure, that the practical agriculturist may not be guided by random guessing. Then follow pages of excellent matter concerning farm implements.

The practical, every day value of such a book as this is very great, and we cheerfully recommend it. It is by the possession of such knowledge as is here given that our agricultural classes are raised above the condition of those of less civilized races. This knowledge not only improves the mind but it saves money, enables the farmer to judge between good and inferior machines, and tells him how to most easily obtain his objects. Nothing shows the advancement of modern agriculture in more striking light than the rapid improvement of farm implements, and perhaps nowhere is the ability to improve on what the farmer uses, possessed to a greater extent than on our coast. In aiding greatly for the still more general diffusion of such knowledge and ability, a book like this is a great help.

HINTS TO HORSE-KEEPERS, a complete Manual for Horsemen. By the late Henry William Herbert (Frank Forester) With additions. Illustrated. New York: Orange, Judd & Co. 8vo. pp. 425. Price, \$1.75.

The basis of the present work is the valuable matter written by Mr. Herbert shortly before his death, comprised within the first thirteen chapters. An extension of the work was undertaken by the author, and the outline of the remaining chapters was being filled out by him, when that strange and fatal mood overshadowed his life, and terminated his earthly labors. In committing the unfinished task to other hands, the publishers have been particularly fortunate in procuring, for each department, competent and experienced aid.

These Hints to Horse-Keepers are intended to include every subject of interest to those who, for pleasure or business, own or use a horse. From their comprehensiveness they are necessarily brief and condensed. More elaborate works on each speciality have previously been in the hands of the public, and this volume is not adapted, nor intended, to supplant them; but by presenting in one volume a compend of our valuable standard works, with the latest discoveries and improvements, it is believed the publishers have answered a demand till now unsupplied.

MONEY IN THE GARDEN.—A Vegetable Manual, prepared with a view to Economy and Profit. By P. T. Quinn, Practical Horticulturist. New York: The Tribune Association. Illustrated. 8vo. pp. 268.

In this work the author aims to give (and succeeds admirably in his aim) instructions on three distinct, although closely connected, branches of gardening—the kitchen-garden, market-garden, and field culture of root-crops—his credentials being a successful practical experience of years. He writes simply, concisely and to the point. The objects, reasons and style may be judged of to some extent by his preface which we here give.

Now-a-days a non-literary practical man, if tolerably successful in any speciality, must do one of two things. He either must keep his own counsel and reticently go on, making what profit he may, or be prepared daily to answer a thousand-and-one questions by mouth, and by letter, conscious that his "pursley" is getting ahead of him, while he casts and recasts multitudinous counsels from his one little mould of experience.

There is a way of evading these alternatives, though it may call for a radical change in the nature of the aforesaid practical man. He can go into a book, there say whatever he has to say, and, going out again (backward at the preface), explain humbly: friends, you will find it in all this volume. I've been as matter-of-fact and explicit as possible, avoiding speculation, and putting down, briefly, things I have learned from daily toil and the wisdom of other men.

This is why these two hundred and sixty-eight pages of simple and conscientious directions are given to all who, by saving or gaining, hope to find "Money in the Garden."

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D. Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N., Long. 121° 29' 44" W. Height above mean low tide, at San Francisco, 74 feet. Height of lower surface of mercury, 34 feet. The amount of cloudiness is designated by figures, 0 being entire cloudiness; 5, half cloudiness; 10, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from three daily readings at 7 A. M., 2 P. M., and 9 P. M., in conformity with the arrangements of the Smithsonian Institute.

1871.	DAILY MEANS OF	TEMP.	WIND.	RAIN.
MONTH	Barometer Corrected.	Therm. Air, Thrm. Hdb., Surface in Soil.	Force of Wind, Direction, and the Force.	Quantity, in Inches.
AND DAY.				
MARCH				
AND				
DAY.				
Sunday, 26	30.080	60	5	0.175
Monday, 27	30.095	61	3	0.212
Tuesday, 28	30.096	61	52	0.292
Wednesday, 29	30.126	63	43	0.249
Thursday, 30	30.138	64	22	0.227
Friday, 31	30.230	66	48	0.327
Saturday, 1	30.140	65	46	1.239

* Thermometograph. † Rain.

REMARKS.—Although the weather of the week has been fraught with disappointment and dismay to the agriculturist, on account of the fierce, desiccating winds that have prevailed, we see no reason yet for despairing of an average harvest. The young grain is not so much injured but that it will revive under the influence of a much less supply of rain than the average fall of April would afford; and at the present writing (April 2d) the prospect is favorable for a speedy contribution of the much needed aqueous precipitation. Within the last 24 hours the barometer has fallen two-tenths of an inch, and the wind is in the right quarter for rain.

Meteorological Report—San Joaquin Valley.

Rain table for a portion of San Joaquin Valley. Prepared for the Press by J. W. A. Wright, from observations since September, 1868, between Tuolumne and Merced Rivers, nine miles south of Empire City and ten miles east of the San Joaquin, in T. 6 S., R. 10 E., Mt. Diablo to meridian and base line.

Lat. 37° 38' N.; long., 120° 55' W. Height above sea, about 100 feet.

MONTHS.	1868.	1869.	1870.
September.....	0.00	0.00	0.00
October.....	0.00	0.00	0.00
November.....	0.95	0.49	0.32
December.....	2.83	0.99	1.89
Total for each year to Jan. 1st....	3.78	2.67	2.46

MONTHS.	1869.	1870.	1871.
January.....	2.62	0.89	0.90
February.....	3.53	2.79	1.44
March.....	3.54	1.17	0.31
April.....	0.99	1.00	—
May.....	0.65	0.00	—
June.....	0.00	0.12	—
July.....	0.00	0.00	—
August.....	0.00	0.00	—
Total.....	15.11	8.64	—

REMARKS.—It will be observed that the amount of rain to April 1st, this season, is 5.11 inches, while to same date, 1870, it was 7.52; and to same date, 1869, it was 13.47 inches. Yet so well has the rain-fall been distributed the past winter and spring, so many cloudy days have we had, and such heavy fogs and dews, that the early sown grain on our loose sandy loam, when well plowed, is forward enough to promise a fair yield if we have a few moderate and well-timed rains in April and May. [The telegraph informs us that the rain of Wednesday reached the locality of our correspondent,—Eds. Press.]

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, March 25, 1871.

IRON.	
Pig, Scotch, No 1 (cash), per ton..	\$31.00 @ \$33.00
Pig, American, No. 1 (cash).....	32.00 @ 35.00
Pig, American, No. 2.....	30.00 @ 33.00
Swedish, ordinary sizes.....	110.00 @ 120.00
Common.....	72.50 @ 77.50
Refined.....	75.00 @ 80.00
Rods.....	80.00 @ 110.00
Horse-shoe.....	95.00 @ —
Hoop.....	100.00 @ 140.00
Roll.....	97.50 @ 130.00
Nail-rod, per lb.....	— 6 1/2 @ —
Spring.....	— 7 1/2 @ —
Tire.....	— 7 1/2 @ 8

STEEL.	
Bars, best cast, warranted, per lb.....	— 18 @ — 19 1/2
Sheet, best cast.....	— 18 @ —
Sheet, second quality.....	— 15 1/2 @ —
Sheet, third quality.....	— 13 1/2 @ —
Saw-piles, circular.....	— 23 @ —
Double-shear, warranted.....	— 18 @ —
Single-shear.....	— 17 @ —
Montague & Co. (cast bars).....	— 15 1/2 @ —
Machinery, round.....	— 12 @ —
German, best.....	— 11 @ —
German, goat.....	— 10 @ —
German, eagle.....	— 9 @ —
Blister, warranted.....	— 14 @ —
Blister, common.....	— 10 @ —
Jeasop & Sons', common.....	— 17 @ —
Double-refined.....	— 26 1/2 @ —
Stone-ax-shapes.....	— 26 1/2 @ —

SUNDRIES.	
American Lead, per 100 lbs.....	7.50 @ 8.00
German.....	7.50 @ 8.00
Bar.....	8.50 @ 9.00
Pipe and Sheet.....	8.50 @ 9.00
Musselman and Amer. Zinc, per lb.....	9 @ 9 1/2
Antimony.....	— 16 @ — 17
Spelter.....	— 7 @ — 7 1/2
Copper, old.....	— 47 @ —

ALVARADO, March 13, 1871.

Messrs. Dewey & Co.—Gentlemen: I am happy to acknowledge the receipt of my letters sent on Mop Holder. I am entirely satisfied with the manner in which you conducted my case. I can assure you that I shall not fail to recommend your method of business to all others having patents to obtain. Yours, etc., JNO. BRIZEE.

PERSONAL.—Wm. H. Murray, representing the SCIENTIFIC PRESS, of San Francisco, California, called on us this week. He is visiting the principal manufacturing points in the United States in the interests of said journal. The Press is a fine looking sheet, same size as the Scientific American, and is now in its 22d volume.—Iron World, Pittsburgh.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper, or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose \$5 piece in a registered letter, in which case we will be responsible for its safety.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$87.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-hp-ft

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoes, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adopting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills Bruges, Belgium. fe25-ly

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

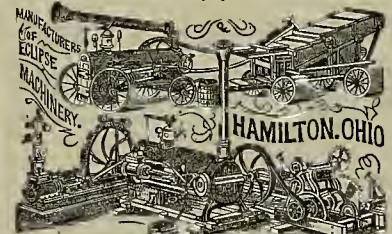
Tuesday, August 10, 1871.

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIBBE.

Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-ft

OWENS, LANE, DYER & CO.
MANUFACTURERS OF
The Eclipse Saw Mills,
Combining THREE PATENTED Improvements
Essential to Working of Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.
With the celebrated
STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

MILLER & CO.,

Wool Commission Merchants,

10 DAVIS STREET, SAN FRANCISCO.

Doing Business exclusively on Commission. All Lots carefully examined before naming price to Purchasers. Consignments insured and handled in wool rooms under our own supervision.

THE BEST WOOL SACKS AND TWINE
Furnished Consignors.

N. B.—Mark M. & Co. with your initial letters on each package. fe25-ft

Scientific and Practical

BOOKS

—ON—

MINING, METALLURGY, ETC.

BY GUIDO KUSTEL,

MINING ENGINEER AND METALLURGIST.

Published and Sold by

DEWEY & CO.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arsenurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price \$2.50 coin, or \$3 currency, postage free.

For single copies of the above works, or for the trade, address

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office, San Francisco.

[No. 2.]

NEW 7-30 GOLD LOAN.

Safe! Profitable! Permanent!

JAY COOKE & CO.

Offer for Sale at Par and Accrued Interest the

First Mortgage Land Grant Gold Bonds

OF THE

NORTHERN PACIFIC R. R. CO.

These bonds are secured, first, by a First Mortgage on the Railroad itself, its rolling stock, and all equipments; second, by a First Mortgage on its entire Land Grant, being more than Twenty-Two Thousand Acres of Land to each mile of Road.

The Bonds are free from United States Tax; The Principal and Interest are payable in Gold—the Principal at the end of Thirty years, and the Interest semi-annually, at the rate of Seven and Three-Tenths Per Cent. per annum.

They are issued in denominations of \$100, \$500, \$1,000, \$5,000 and \$10,000.

The Trustees under the Mortgage are Messrs. Jay Cooke, of Philadelphia, and J. Edgar Thomson, President of the Pennsylvania Central Railroad Co.

These Northern Pacific 7-30 Bonds will at all times, before maturity be receivable at Ten Per Cent. Premium (or 1.10), in exchange for the Company's lands at their lowest cash price.

In addition to their absolute safety, these Bonds yield an income larger, we believe, than any other first-class security. Persons holding United States 5-20's can, by converting them into Northern Pacifics, increase their yearly income one-third, and still have a perfectly reliable investment.

HOW TO GET THEM.—Your nearest Bank or Banker will supply these Bonds in any desired amount, and of any needed denomination. Persons wishing to exchange stocks or other bonds for these, can do so with any of our agents, who will allow the highest current price for all Marketable Securities. Those living in localities remote from Banks, may send money, or other bonds, directly to us by express, and we will send back Northern Pacific Bonds at our own risk, and without cost to the investor. For further information, pamphlets, maps, etc., call on or address the undersigned, or any of the Banks or Bankers employed to sell this Loan.

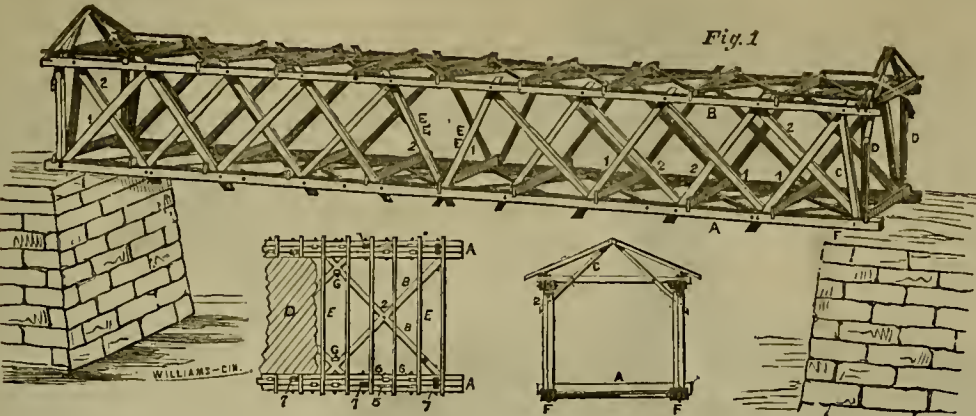
For Sale by

JAY COOKE & CO.,

Philadelphia, New York and Washington, Fiscal Agents Northern Pacific Railroad Company.

By most National Banks, and by Brokers generally throughout the country. ma25-13t-cow

PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points :
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

ma4-2tam

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,
San Francisco.

PORTABLE MILLS.

GRIST MILL, Two Run of Stone Complete for \$1,200.

FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smut- ters, Corn Shellers, Flour Pack- ers, Hominy Mills, Belting, Picks and Mill Work generally.

SEND FOR DESCRIPTIVE PAM- PLET.

mg-111111

ISAAC STRAUB & CO.,
Cincinnati, Ohio.



CO-OPERATIVE UNION

Grocery and Provision Store

Removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-1f

SCIENTIFIC PRESS.

Fig. 1

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Eagle Quicksilver Mining Company—

Location of mines, Eagle Mining District, Santa Barbara County, California.

NOTICE.—There are delinquent upon the shares of the following named persons, on account of assessment levied on the Eighth day of February, 1871, the several amounts set against the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Bankley, A. S.	unissued.	1	\$40 00
Kays, J. C.	unissued.	1	40 00
Kays, J.	unissued.	1	40 00
Benton, Dr. H. A.	unissued.	1	20 00
Smith, Alfred.	unissued.	1	20 00

and in accordance with law and the articles of agreement of said mining company, and an order of the Board of Trustees thereof, made on the eighth day of February, 1871, the whole or such undivided part of each of such delinquent shares in said mines as may be necessary to pay said assessment upon each, will be sold to the highest bidder at public auction, for cash, in United States gold and silver coin, at the office of the company, room 6, No. 302 Montgomery street, San Francisco, California, on Monday, the 10th day of April, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with cost of advertising and expenses of sale.

W. H. WATSON, Secretary.

Room 6, 302 Montgomery street, San Francisco. ap8

Mountain City Mining Company—Location

of mine, Cope District, Elko county, State of Nevada.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the Eighteenth day of February, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Best, John T.	61	400	100 00
Enright, John T.	63	250	62 50
Greek, H. J.	42	100	25 00
Hobron, W. M. C.	28	60	12 50
Hobron, W. M. C.	24	10	2 50
Hobron, W. M. C.	25	10	2 50
Hobron, W. M. C.	26	10	2 50
Read, Francis.	62	400	100 00
Strong, Harvey.	28	125	31 25
Sharp, Wm. H.	67	900	225 00
Titus, H. W.	49	400	100 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of January, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of April, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINOARD, Secretary.

Office, 206 Front street, San Francisco. apl-2w

Marble Falls Mining Company.—Location

of Works: Mammoth District, Nye County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 26th day of March, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 4, No. 405 Front street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the first day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 22nd day of May, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. A. S. N. STYDAM, Secretary.

Office, Room No. 4, No. 405 Front street, San Francisco, California. apl-1w

North America Consolidated Mining Com-

pany—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the 15th day of February, A. D. 1871, (also amount due by original owners on rescinded stock) the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A F Collins.	15	655	33 30
A F Collins.	40	150	18 00
Thos. Cassin.	61	166	16 00
W Eruson.	14	655	33 30
W Eruson.	42	166	16 00
H C Hemenway.	19	655	33 30
H C Hemenway.	43	166	16 00
P F Mohrhardt.	44	166	16 00
S Pinkham.	20	655	33 30
S Pinkham.	45	166	16 00
Geo R Spinney.	12	655	33 30
Geo R Spinney.	46	166	16 00
I A Steele.	49	166	16 00
W J Taylor.	48	166	16 00
A F White.	4	1000	60 00
Thos Wells.	38	1000	50 00
Thos Wells.	39	250	25 00
W E Wood.	50	166	16 00

And in accordance with law, and an order of the Board of Trustees, made on the fifteenth day of February, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the company, room 5, No. 302 Montgomery street, San Francisco, California, on Thursday, the 27th day of April, A. D. 1871, at the hour of 2 P. M. of said day, to pay said delinquent Assessments thereon together with costs of advertising and expenses of sale.

W. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. apr-1

Silver Sprout Mining Company—Location

of Works and Mines, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of March, 1871, an assessment of \$6.25 per share was levied upon the capital stock of said company, payable immediately, either in United States gold coin, or stock in the company, at the rate of \$12.50 per share in like gold coin, to the Secretary, at the office of the company, No. 208 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 1st day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, No. 206 Front street, San Francisco, Cal. ma25

SONORA HOTEL,

T. BRODIGAN,.....Proprietor.

Best Meals and Beds in Sonora, Cal. fe26-3m

E. J. FRASER, M. D.,

No 108 Stockton Street, S. F., Cal

CALIFORNIA CHEMICAL PAINT COMPANY,

MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE

Purest White, and 100 Different Shades,

MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets,

ap8-3m

G. W. OSBORN, } Agents.
C. F. BROWN, }

Machinists and Foundries.

**FULTON
Foundry and Iron Works.**

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers.

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.
Particular attention paid to Jobbing Work and
Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
15v20-3m

GODDARD & CO.

THE RISDON**Iron and Locomotive Works.**

INCORPORATED.....APRIL 30, 1863.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.
WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qy

**UNION IRON WORKS,
Sacramento.****WILLIAMS, ROOT & NEILSON,**

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

16v1 SACRAMENTO CITY

**THE
[ASPHALTUM PRESSURE PIPE
COMPANY,**

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

California File Manuf'g Co.

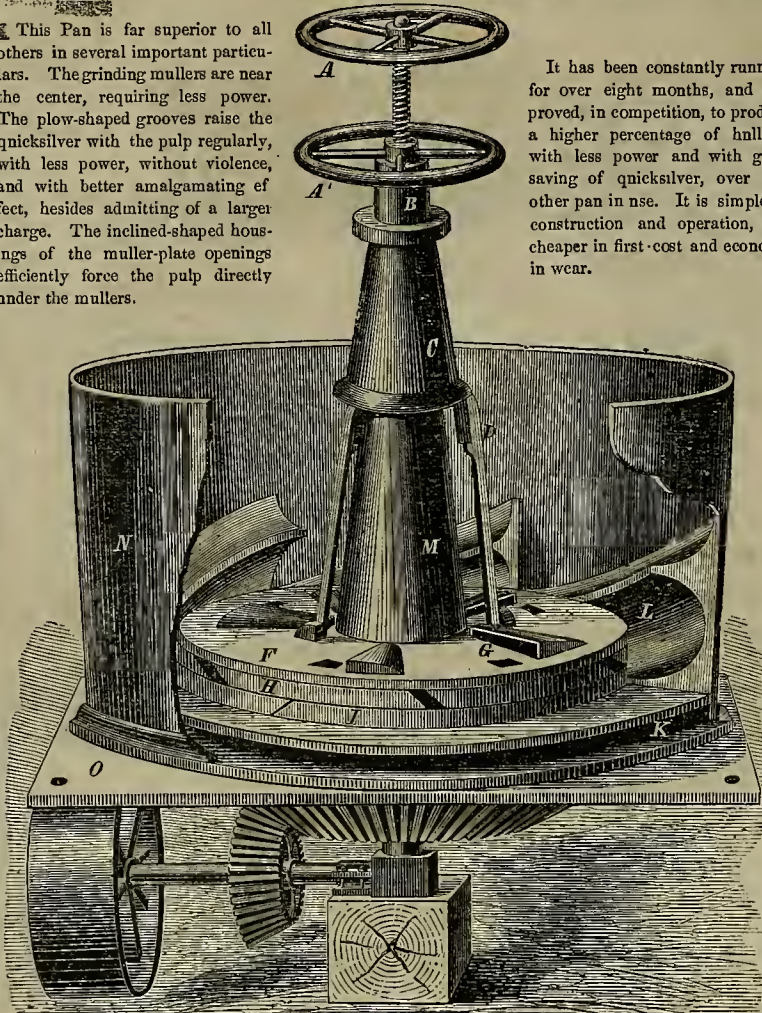
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.

**REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.**

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-qy

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

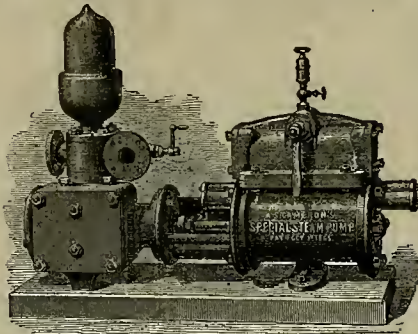
This Pan is far superior to all
others in several important particu-
lars. The grinding mullers are near
the center, requiring less power.
The plow-shaped grooves raise the
quicksilver with the pulp regularly,
with less power, without violence,
and with better amalgamating ef-
fect, besides admitting of a larger
charge. The inclined-shaped hous-
ings of the muller-plate openings
efficiently force the pulp directly
under the mullers.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,
Where it can be examined and further particulars be learned; or persons may apply to the inventor and pat-
entee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pan have long
been in constant operation. 15v20-1mr, lamtf

**CAMERON'S
STEAM PUMPS.****PICKERING'S
Engine Regulators.****GIFFARD'S
INJECTORS.****BARTOL'S
STEAM TRAP.
Surface Condensers.**

DAVID STODDART,
114 BEALE STREET, S. F.

**VULCAN IRON WORKS.**

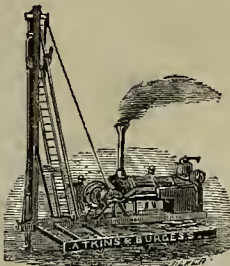
Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

**STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL**

GEARING AND
GENERAL MACHINERY
CASTINGS
MADE TO ORDER.



Jobbing Promptly Attended to. 3v22-3m

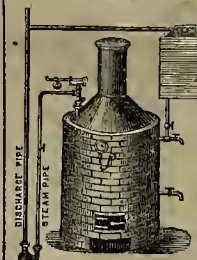
**PACIFIC
Rolling Mill Company,**
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting.
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

HAMMERED IRON
of every description and size.
Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention.
The highest price paid for Scrap Iron 9v14-3m

**RUSS PATENT
MONITOR MOLDING MACHINE,**

MADE BY
R. BALL & CO., Worcester, Mass.,

Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Fac-
tories, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly

**STEAM JET PUMP.
Blaklee & Williams' Patent.—For
Water, Oils, Acids, Etc.**

The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit:—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent
of an engine; it will not
choke up with foul water; it
costs much less to put up
and start; it will not wear
out in a lifetime, or require
repairs; it is reliable, and
certain to work at all times;
it is not liable to injury
from freezing.

Satisfaction guaranteed or the money refunded.

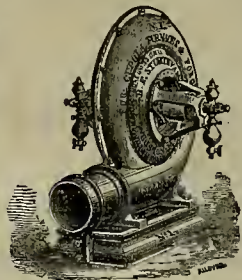
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.

AGENTS—CHAS. F. BROOK, 117 California st., San Fran-
cisco; KEPP & BARON, Stockton. Can be seen at
MOAFFEE, SPIENS & Co's, Boiler Works, S. F. 21v21-tf

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.

DESCRIPTION:—D, is a glass chamber which contains
the lubricant. C, is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted siphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the expan-
sion of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. 1618-tf

**STURTEVANTS**

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the differ-
ent sizes always in
store. 4v22**The Stetefeldt Furnace.**

For information of any description respecting (this
process,

**APPLY TO
STETEFELDT FURNACE COMPANY.**

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition Zinc, and Babbitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
necting of all sizes and patterns furnished with dispatch.
PRICES MODERATE.
J. H. WEED V. KINGWELL.

**SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills**

AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Spe-
cial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF
**PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.**

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.
SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS.
— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
**MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.**
MANUFACTURER OF

Steam Engines, and Mill Work Generally.
Solo Agent for TAYLOR'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



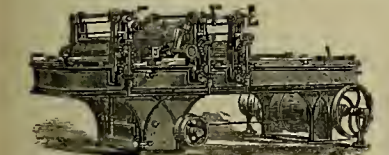
MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
113 and 115 Fremont street, near Market, San Francisco.
10v14r

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN.
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents, **BERRY & PLACE,**
112 and 114 California street, San Francisco.

For
Steam Pipes
& Boilers
Hair Felting
Saves 25 per cent. For Sale by **BERRY & PLACE,**
4v22 112 California street, San Francisco.

Varney's Patent Amalgamator.
These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.
They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.
Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.
HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles
of Gold, 20v21-1f

NORTH-WESTERN MANUFACTURING COMPANY.

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

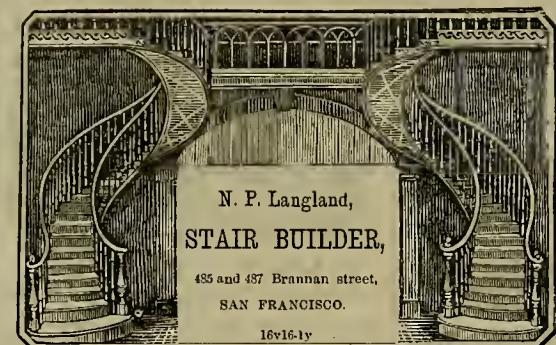
STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,
Brass and Iron Goods for Steam and Gas Fitters and Engine Builders
Cast Iron and Malleable Iron Fittings and Castings.

Steam Warming and Ventilating apparatus for public and private buildings. Hoist-
ing Machines of approved patterns. Send for Illustrated Catalogue.

R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.



**N. P. Langland,
STAIR BUILDER,**

435 and 437 Brannan street,
SAN FRANCISCO.
16v16-1y

Rails, Newel Posts,

AND BALUSTERS,
Constantly on hand for sale, and
shipped, together with
all kinds of

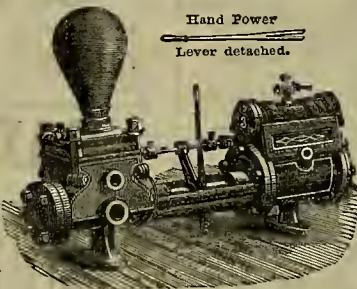
STAIR WORK,
To any part of the coast. Practi-
cal workmen sent, when desired,
to put up the same.

Work Warranted to Fit
by simply sending a correct ground
plan of stairs, together with light
of story.

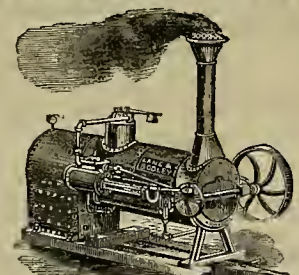
Wood-Turning and Scroll Saw-
ing of all kinds promptly executed.
Spanish Cedar, Walnut and
California Laurel always on hand.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed
in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and pow-
er. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be
run slow or fast, as may be desired. Will discharge more water
than any others of the same dimensions. Has no leaky
joints, the steam part being cast in one entire piece. The steam
valve is perfectly balanced, is cushioned at each end, and
slides with the greatest facility having no cans, nor complex
rotary arrangements to get out of order. Will start at any
point of the stroke, and will discharge all the water of conden-
sation. The Pump has no crank or fly-wheel, thereby saving a
considerable item of expense to the purchaser. Having no dead
points, it therefore needs no watching, and is consequently
ready to start without using a starting bar or any hand work
whatever. The Blake Pump is extensively used on Railroads
and Steamboats; in Hotels; for Mining and Fire purposes; in
Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and
deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and conse-
quently the best Steam Pump ever built. For sale by **BERRY & PLACE,** Machinery Depot, 112 and 114 California st.,
San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



LANE & BODLEY'S



PORTABLE STEAM ENGINES.

From eight to twenty-five horse power, adapted to
Farm, Plantation, Saw and Grist Mill use.
OUR PORTABLE ENGINES excel in having ca-
pacities wrought Iron Steam Dome, with Man Head
giving free access to the boiler, wrought Iron Smoke
Head, Lift and Force Pump, and for beauty of design
and efficiency.

ALSO, Stationary Engines, Rollers, Saw Mills,
Shuffling and Wood-working Machinery.

AGENTS Catalogues furnished on application.
W. L. Cushing, New Orleans; John P. Dale, Nashville, Ten;
G. S. Wormer & Son, Detroit.

LANE & BODLEY,
John & Water St. Cincinnati, O.

The Angel's Quartz Mine

Shaft is over 400 Feet Deep,
and is kept free from water
in its lowest level by the

BLAKE STEAM PUMP

Sold by **BERRY & PLACE,**

112 California st., San Fran-
cisco. 4v22

McAfee, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco

2v21-1f

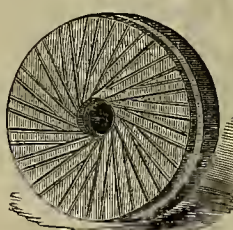
TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated 'Dutch
Anchor brand Bolt-
ing Cloths; Smut
Machines; B & N
Dusters; Mill Picks;
Mill Picks dressed;
Millstones repaired
rebuild and bal-
anced.

MANUFACTURERS OF
French Burr Mill
Stones, Portable
Mills of all sizes,
from 16 to 36 inches, for grinding Corn, Barley, Feed,
Salt, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz. 2v22-1yins



41 First st., San Francisco.

A NEW ARTICLE.

Composition Pipe for Conducting Water.

The attention of Railroad Companies, farmers dairy
men and others, is called to our new Pipe for leading
water. It is lighter than ordinary lead pipe, and much
cheaper than iron, will stand a heavy pressure, and de-
liver about one-third more water than iron pipe, provid-
ed the sizes are the same.

We are now manufacturing all sizes, from half-inch to
two-inch, and can fill large orders at short notice and
put on reels for shipment, the same as lead pipe.
Samples can be seen at our office.

No. 116 California Street,

THOS. H. SELBY & CO.

apl-1m

**THOMPSON BROTHERS,
EUREKA FOUNDRY,**

and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE, Manager.
J. A. MAHS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v26

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)
**Assayer and Metallurgical
CHEMIST,**
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint),
SAN FRANCISCO, CAL. 7v21-3in

RODGERS, MEYER & CO., COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v163m

Richardson & Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established
in Swansea as Agents for the preparation, Sampling, Assay-
ing, and Sale of Copper, Silver, Gold, Lead, Zinc, and all
other Ores and Metals, for which they have extensive Ware-
houses and Wharves under cover, 1000 feet of Quay Front-
age within the Floating Dock, and the most complete Ma-
chinery and Appliances. They are also prepared to make
advances against Ores in anticipation of realization, and to
guarantee all payments when required. 5v22-1ys

LOUIS FALKENAU,

**STATE ASSAYER,
Analytical and Consulting Chemist,**
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters,
Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practi-
cal instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory. 11v21-3m

The California Powder Works

**No. 314 CALIFORNIA STREET,
SAN FRANCISCO.**

Manufacturers and have constantly on hand

**SPORTING,
MINING,
And BLA-TING
POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the best BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.

A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE
Ransom Patents, the most perfect SANDSTONE, speci-
mens of which may be seen in the ornamentation of
Dr. Storer's Church, now in course of erection, at the
corner of Post and Mason streets. For architectural,
ornamental and mechanical purposes, this stone sur-
passes all natural stone of its class.

GRINDSTONES from this factory, which we make of
any desired size, may be seen at many of the great
mechanical shops in this city, where they are held in
high esteem.

The factory is now turning out Architectural Stone,
Cemetery Stone, Grindstones, Garden Ornaments, in
the way of Vases, Fountains, etc. The nature of the
art admits of our moulding the stone in any desirable
form, and enables us to compete successfully with all
natural stone wrought by hand. In England, where the
stone has been manufactured largely for the past fifteen
years, it is considered, for durability and strength, to
surpass the best English Sandstone. The British
Government employs it largely in its public buildings,
both at home and in its Colonies; and as we have se-
cured the services of MR. ERNEST L. RANSOM, late
Superintendent of the home works at Greenwich, Eng-
land, we are turning out stone fully equal to the English
standard.

For particulars, apply at the Factory, corner Turk and
Larkin streets. mal8-1f

DEWEY & CO.,
American and Foreign Patent
Agents, Publishers of
the Scientific Press,
San Francisco.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments made and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secure, with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will always be as low, and in some instances lower, than those of any other responsible agency.

We can and do get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country) sooner than any other agents.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has frequently happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency. The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

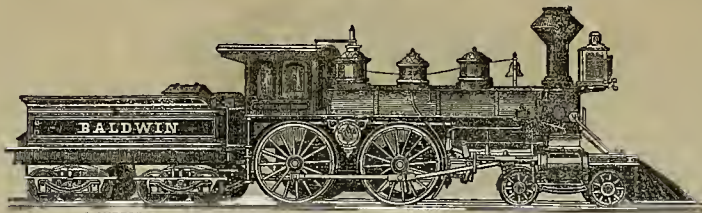
We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communications and business transactions will be held strictly confidential by us.

Engravings.

We have superior artists in our own office, and all facilities for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular and other printed illustrations, and are always ready to assist patrons in bringing their valuable discoveries into practical and profitable use.

DEWEY & CO.,
SCIENTIFIC PRESS AND PACIFIC RURAL PRESS
Office, 414 Clay street, San Francisco.

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,
MANUFACTURERS OF LOCOMOTIVE ENGINES.

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD,
GEO. BURNHAM,

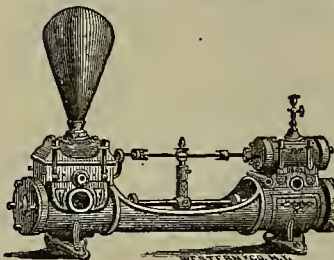
CHAS. T. PARRY,
EDWARD H. WILLIAMS,

WM. P. HENSZEY,
EDWARD LONGSTRETH.

WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal.

apl-ecw26t

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



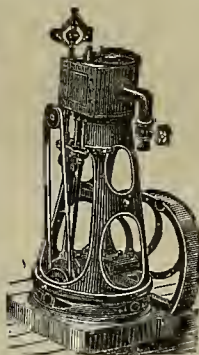
Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

HALLIDIE'S
Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,
519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office.



RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York.
26v20-1y16p

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary.

MAGAZINES.	P. A.
Harper's.....	\$4 00
Atlantic.....	
Godey's.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Harper's Weekly.....	3 00
Peterson's.....	
Arthur.....	
Lady's Friend.....	5 00
Harper's Weekly.....	
Chimney Corner.....	
Literary Album.....	6 00
London Society.....	
All the Year Round.....	
London Ill. News.....	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., and Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tulle's Patent Cross Cut Saws; Davis' Patent Double Out Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD, LIPPENCOTT, BAKEWELL & CO.

Also, SHOVELS, AXES AND SPADES. All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
Pittsburgh, Pa.
mail-16p-tf

BAIRD'S

BOOKS

FOR PRACTICAL MEN.

My new and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, 82 pages, 8vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
PHILADELPHIA.

Phoenixville Bridge Works
OF PENNSYLVANIA.

CLARKE, REEVES & CO.,

ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

World respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia.
ap8-ly

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,
Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$2.50
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.
GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. CONGDON, Secretary.
apl-3m.

SALT LAKE CITY.—Chas. Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS.

W. T. GARRATT & CO.
CITY



Brass and Bell Founder,



Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells, TAVERN AND HAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



No. 17 and 19 Fremont St., near Market,
MANUFACTURER OF

SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of **Portable & Stationary Saw Mills.**

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

25 Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all Dealers throughout the World.

Pacific
Insurance Company,
No. 422 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

O. J. KING, B. KIMBALL, P. D. CODE,
P. D. CODE & CO.,
MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURERS.—1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 15, 1871.

VOLUME XXII.
Number 15.

Improvements in Railroad Construction.

With the multiplication of railroads on our coast, the subject of preventing accidents increases in importance. While we have been heretofore quite fortunate in the actual number of losses, yet we hear every now and then of something of the kind. When we compare the number of passengers carried and the number of miles traversed with the number of accidents, we find that railroad traveling is by no means to be called dangerous. Yet once in a while a disaster does occur, which, by its suddenness, and, perhaps, magnitude, seems particularly terrible.

The liability to such accidents, whether they actually occur or not, demands that railroad companies should adopt every improvement which tends to safety, and their interests also require that they should by proper devices guard against loss of property.

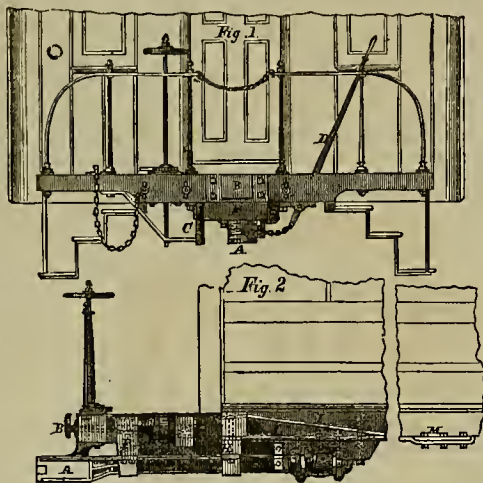
Our attention has been called to the fact that the California Pacific Railroad has in use a large number of what are called Miller's trussed platforms, compression buffers and automatic couplers. These have been proved by tests on various roads to have acted efficiently in preventing loss of life and property. We give illustrations of this excellent device which seems to us to be almost a requisite for a really good road.

Fig. 1 is an elevation; Fig. 2, a longitudinal section; Fig. 3, a plan of an end of a car to which the arrangement has been applied. The letters refer to the same parts in all the figures. A is the coupling hook; B the buffer; C the stop; D the lever; F the truss beam; G the spring beam; H the suspender beam; I the upward trusses; K the main spring; L the downward trusses; and M the bolster.

The platforms, instead of being located below the centre line of the main sills of the cars, are placed in that line, and held there by the trusses, I and L so that the point of contact (in buffers, B) is in the said centre, and not below it. The coupling hook, A, is attached to the draw spring the same as the ordinary draw head, and at the same height above the track, but in such a manner that the outer end is free to move laterally for a short distance. The coupling hook projects beyond the platform. The stop, C, is placed under the buffer beam to prevent accidental uncoupling. When two cars are brought together, the coupling hooks, from their shape, push each other aside, until the buffers, B, are compressed hard on the buffer springs, then—the points of the hooks having passed each other sufficiently far—the hooks are carried forward by their main springs, and thus the coupling and compression are both effected automatically and at the same time, and without the use of links and pins.

When two cars are thus coupled together, the head of the hook of each car is under the buffer beam of its opposite car, and the platforms are close together (about four inches apart). The effect of this is, one platform cannot be forced over the other, nor can a person fall between the platforms; the dust and rain are nearly all shut out; the compression makes the train run steadily, and prevents all jerking at starting and stopping.

It is said that telescoping and oscillation make up three-fourths of the sum of all railroad accidents, the latter greatly predominating. This construction is affirmed by many railroad engineers to prevent these. It also, however, obviates the liability to many other dangers, as falling between the cars, being crushed when coupling, etc. The testimony in its favor is certainly very great. It is asserted that



MILLER'S TRUSSED PLATFORMS, COMPRESSION BUFFERS AND AUTOMATIC COUPLERS.

its present use saves at least an average of one life a month, even one every week, to say nothing of the amount of property.

Of our western roads, the California Pacific, the Union Pacific and the Utah Central have adopted the arrangement. We believe that it has not yet been introduced on the Central Pacific, but as the management is alive to the interests and advances of the present, and as one of the prominent officers of the road has spoken very favorably of it, we may hope that it will be in use on this road also before long.

ARRIVAL OF SILKWORM EGGS FROM JAPAN. The silkworm eggs, which we mentioned two weeks since as en route to this city from Japan, have arrived. They consist of 135,000 cards, costing in Japan \$675,000. The eggs were contracted for in Japan by a French house, at five dollars per card. Through the embarrassment of the war in France, the house was compelled to cancel all orders by telegraph, and could not meet engagements already executed. The Japanese merchants, eleven in number, on whose hands the eggs were left, immediately purchased a vessel with which they have arrived at this port in personal charge of their property. The eggs are reported to be fresh and in prime condition.

State Geological Surveys.

We learn, through the columns of a valued cotemporary, the *U. S. Min. and R. R. Register*, of two facts concerning State geological surveys, which are illustrative of what we should call practical sense and of profound stupidity. We incorporate the matter furnished by the paper alluded to into the following article.

One fact, which illustrates the fanatic stupidity, is the action of the Senate of West Virginia with regard to the State geological survey. A bill instituting the survey had passed the House, but failed in the Senate,—not on the grounds of practicability or impracticability, of expense or usefulness; but because of the opposition of several profound theologians and senators who declared that Geology was opposed to Religion. A friend suggests that

mineralogical geologist of the country, now the chief of the California survey, Prof. J. D. Whitney, of Harvard College," was his assistant. "It is remarkable that the young State of Iowa should thus have been able to secure the two foremost men in the science together on its survey." The war trouble stopped the work, which was resumed, however, in 1866, under charge of Dr. C. A. White. "The natural increase of population" adds the paper alluded to, "taking up into cultivation always new land and opening fresh treasures hid in the earth, sufficiently explains the fact that none of the United States which has had a geological survey made once, fails to order a second or a third; and it is as certain as that the sun will continue to shine, that every State government will in time embrace as a necessary, integral and perpetual feature of its existence, a standing directorship of mineral surveys, and a bureau of physical and commercial statistics."

IRRIGATION DITCHES.

The Calaveras and San Joaquin Water Company, lately incorporated, propose building a canal, 8 feet deep, 40 feet wide at the top, and 30 feet wide at the bottom from the Mokelumne river, near Camanche, to Bear creek, San Joaquin county, thence to the Calaveras river, and thence to Stockton. It is claimed that the canal will irrigate at least 350,000 acres of land.

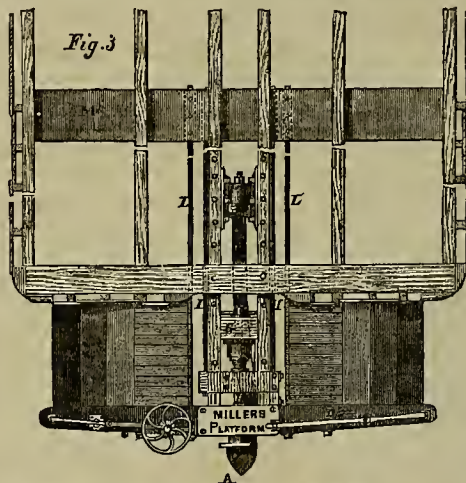
The Merced Irrigation Canal is being constructed by Wm. G. Collier & Co., work having been commenced in February.

This is to be 50 feet wide, with a fall of one foot to the mile, and to extend from mouth of the Merced river to Bear creek, the near the Lone Willow, (where the latter stream will be dammed) to Farn's creek. From a point high up on this creek a canal will be cut along the hillside to a point about five miles above Snelling, to the Merced.

The San Geronio Canal Company, of San Bernardino county, has lately been incorporated. It proposes to divert and distribute the water flowing into San Geronio Pass.

The Mormon Slough Canal and Irrigation Company has been incorporated at Stockton.

PATENT EGG CASES.—Persons who ship or handle eggs in large quantities, will find it to their advantage to make use of Steven Bros.' Patent Egg Cases. These cases hold about 30 dozen eggs each, which are self-counting, (so that no mistake can be made) while they can be packed with the greatest ease and facility. Eggs shipped in these cases sell more readily; and are less subject to damage from being broken. No packing material is required. This is a California invention, and was patented through the SCIENTIFIC PRESS AGENCY, February 26th, 1867. The cases sell by the quantity at from \$3 to \$3.50 each. Parties desiring further information, should apply to the proprietors, as above, at the Union Market, on Howard street, in this city.



MECHANICAL PROGRESS.

PURITY OF MELTED METALS DETERMINED BY THEIR DROPS.—Dr. Quincke, of Berlin, has described,—says the *Polytechnische Journal*,—a new method of determining the purity of melted metals, and of various chemical combinations by the height of the drops which are formed by them upon a horizontal surface. By the height of a drop, such as is formed by dew upon a leaf or by quicksilver upon glass, is meant the vertical distance of the horizontal plane from the vertex of the drop surface. This altitude is nearly constant, and is independent of the diameter of the drop if it is not greater than 20 millim. * * * The altitude of large flat drops or bubbles is less if their surface is covered with a thin coat of some fluid. A fluid coat less than the millionth of a millimetre in thickness is sufficient to reduce the altitude of melted drops in a sensible degree. A maximum of depression ($\frac{1}{4}$) occurs when the coat is 50-1,000,000 of a millimetre in thickness, which is about 1-10 of the length of a light wave. The presence of very small quantities of substances may be proved in this way to a degree of delicacy unequalled by any other method of observation except that of the spectroscope. A trace of oil on a drop of dew or a bubble of air in water, and a trace of lead applied to a drop of melted silver, reduced the height from 4 to 2.8 millimetres, so that unpractised eyes could easily discern the difference. Substances which oxidize easily in the air should be melted and tried in some indifferent gas, like carbonic acid gas. Large flat drops of iron from several mills, with surfaces coated with oxide, all had the same altitude of 5.2 millimetres. Workmen in foundries are in the habit of judging the quality of cast-iron by the form and condition of the drops. The speaker thought the careful investigation of the forms and altitudes of melted drops might prove an important aid in determining the properties of metals.

PROGRESS IN STEAM ENGINEERING.—From an editorial in London *Engineering* for March 3d, we clip the following:—"On land and sea the purchase cost of a steam horse power has increased during the past twenty years from 20 to 30 per cent., the pressure has increased 50 to 500 per cent., while the weight of fuel per each horse-power has been reduced from 7 lb. to $2\frac{1}{4}$ lb., and if we take the past ten years only, a pound of coal now develops twice the power it did in 1861. Successful steam engineering does not mean merely the production of an engine economical in working, but the production of one at a cost that shall be remunerative to the purchaser. That the improvement previously named is of this character in marine engineering is easily proved. In 1861, marine engines of 400 indicated horse-power could be purchased in the north for 3,500l., requiring $4\frac{1}{2}$ lb. of coal per each horse-power; in 1871, the same power can be purchased for 4,500l., requiring $2\frac{1}{4}$ lb. of coal for each horse power. Such engines would average at least 200 days' steaming each year, and allowing 20s. per ton for the coal saved and additional cargo—a very low estimate—the owner will receive nearly 2,000l., or 200 per cent. on his extra purchase outlay of 1,000l., while assuming the value of the 1861 ship and engines to be 16,000l., and those of 1871 to be 17,000l., and the first ship just cleared her expenses, the saving in fuel alone would give a dividend of nearly 12 per cent. on the capital of the second and higher-priced ship. This great reduction of fuel, and the certainty that a large margin is left for further saving, gives a most encouraging prospect for the future of steam navigation."

HIGH SPEED COMPOUND ENGINE.—*The Engineer* illustrates a three-cylinder compound engine invented by A. F. Franklin. We quote from the description: "In order to avoid the inconvenience and 'knocking' attending the running of double-acting high-speed steam engines due to the sudden reversal of the strain on the crank pin at each stroke, Mr. Franklin uses three single-acting cylinders with cranks set at 120 deg. The connecting rods being fixed directly on to the pistons, the height of the engine is reduced to the lowest possible limit, a point of much importance in marine engines with overhead cylinders. The eccentric and valve gear is simplified. The course of the steam will be readily traced. When it has done its work it exhausts from the last and largest cylinder into a

condenser; this piston, and this only, using the pressure of the atmosphere as motive power. In order to avoid the evil of excessive cylinder condensation, common hitherto to all single-acting engines, the cylinders are jacketed, and the pistons are provided with trunks, consisting of thin cylinders of steel, lagged with wood inside. These cylinders may be regarded as practically non-conducting, as their weight is too small to enable them to condense much steam, while the quantity of air which can find its way between their sides and those of the cylinders, is too small to have any appreciable cooling effect. It is clear, therefore, that the temperature of the metal of the cylinders will be maintained very nearly as well as though the engines were double-acting."

NEW FEEDING MACHINE FOR PRINTING PRESSES.—*The Tribune* describes a recent invention in which a single sheet from the pile of paper is sucked up at each upward movement of the oscillating table upon which it is placed. An oscillating pipe, furnished with short tubes, or caps, having oblique edges, is exhausted of air at each movement, by means of an air pump attached to the machine,—thus supplying the suction apparatus. A second tube is placed parallel with the oscillating pipe, and is provided with several perforations opposite the table, from which currents of air pass underneath the raised sheet of paper and separate it from the other sheets lying on the table. At this instant the suction of the pipe ceases by the action of a cock cutting off the communication with the vacuum-chamber, and the paper is released from the cups and delivered to the adjusting apparatus. The latter consists of a series of grippers and clamps by which the sheets are adjusted and delivered to the printing-press without manual assistance. The sheet is seized by traveling carriers moving horizontally, and if oblique, or out of place on the back table, the front edge is drawn squarely up to the gauges by means of guides, while at the same time side-clamps, acting at right angles to the carriers, seize the lateral edge of the sheet and adjust it according to side-gauges. The apparatus is not only adapted to printing-presses, but may be used in connection with rolling, folding, cutting, and all other machines which are fed with paper. Its speed is 2,500 sheets an hour.

BESSEMER STEEL CAST GUN BARRELS.—*The London Mining Journal* says Mr. Foster, of Sheffield, has had rifle barrels cast from a hollow bloom. They are cast with a chill centre, and then rolled into the centre instead of being drilled, so preserving the original skin of the metal. By being case-hardened they wear longer without fouling, are not liable to corrosion, whilst the cost is scarcely so much as the ordinary barrel. Mr. Foster has just had a Chassepot barrel cast, and it appeared to be all that could be desired. The invention is applicable to steel hoops for railway wheels, gun barrels, and the casting of cylindrical forms in Bessemer or crucible steel. The object of the improvement is to save the preliminary processes in the production of a "bloom" by casting it in a metal mould, with a movable metal pin centre.

LOCOMOTIVE FEED-WATER HEATER.—*The Springfield Republican* thus describes an arrangement now being tested on the Connecticut River Railroad, for the saving of fuel by utilizing the waste heat:—"The water is pumped from the tank in the tender through a copper pipe, $1\frac{1}{2}$ inch in diameter, to the 'heater,' which is a coil of pipe of the same size around the 'cone-pipe' in the smoke-stack, and from this coil the water, heated to more than 200 degrees Fahrenheit during its passage through the coil, passes in a copper pipe on the side of the boiler opposite its passage when cold, and into the boiler."

SIZE AND SPEED OF BELT FOR ONE-HORSE POWER.—"It is found practically, that a leather belt eight inches wide, embracing half the circumference of a smoothly-turned iron pulley, and traveling at the rate of 100 feet per minute, can communicate one-horse power."—*Jour. Frank. Institute*.

SHEET TANITE.—Such is the name of a new article intended as a substitute for vulcanite, about to be brought before the public by the Tanite Company of Stroudsburg, Pennsylvania.

SCIENTIFIC PROGRESS.

PARTHENOGENESIS.—A. S. Packard reviews, in the *American Naturalist* for March, a work by Prof. Ganin on the early stages of Ichneumon parasites, and at the conclusion says he cannot refrain from making some reflections suggested by the remarkable discoveries of Ganin. We quote:—"In the first place, these facts bear strongly on Cope and Hyatt's theory of evolution by 'acceleration and retardation.' In the history of these early larval stages we see a remarkable acceleration, or hurrying up, of the embryo. A simple sac of unorganized cells, with a half-made intestine, so to speak, is hatched, and made to do the duty of an ordinary, quite highly organized larva. Even the formation of the 'primitive band,' usually the first indication of the organization of the germ, is postponed to a comparatively late period in larval life. The different anatomical systems, the heart, with its vessels, the nervous system, and the respiratory system (tracheæ), appear at longer or shorter intervals, while in one genus, the tracheæ are not developed at all. Thus some portions of the animal are accelerated in their development more than others, while others are retarded, and in others still certain organs are not developed at all. Meanwhile all live in a fluid medium, with much the same habits, and surrounded with quite similar physical conditions. The highest degree of acceleration is in the reproductive organs of the Cecidomyian larva of Miastor, which produces a summer brood of young, alive, and which live free in the body of the child-parent; and in the pupa of Chironomus, which has been recently shown by Von Grimm, a fellow countryman of Ganin, to produce young in the spring, while the adult fly lays eggs in the autumn in the usual manner. This is in fact a true virgin reproduction, and directly comparable to the alternation of generations observed in the jelly fishes, in Salpa, and certain intestinal worms. We can now, in the light of the researches of Ganin, Siebold, Leuckart, and others, trace more closely than ever the connection between simple growth and metamorphosis and metamorphosis and parthenogenesis, and perceive that they are but the terms of a single series. By the acceleration of a single set of organs (the reproductive), no more wonderful than the acceleration and retardation of the other systems of organs, so clearly pointed out in the embryos of Platygaster and its allies, we see how parthenogenesis under certain conditions may result. The barren Platygaster larva, the fertile Cecidomyia larva, the fertile Aphis larva, the fertile Chironomus pupa, the fertile hydroid polyp, and the fertile adult queen bee, are simply animals in different degrees of organization, and with reproductive systems differing not in quality, but in the greater or less rapidity of their development as compared with the rest of the body."

PROGRESS OF THE CALIFORNIA GEOLOGICAL SURVEY.—Some two months since, we noted the issue of the first volume of the Ornithology, containing the land birds of the western side of the continent. *Silliman's Journal* for April has the following:—"The second volume of Ornithology, which will contain the water-birds of the whole country, is in process of preparation. The volume of Conchology, which Dr. Carpenter undertakes, is likewise begun; and Prof. Brewer of Yale, formerly assistant on the survey, is rapidly working up the botanical material for publication, aided by Prof. Gray, and by others specially qualified for the work. The abundant collection of mammalian fossils is committed to Dr. Leidy for treatment. The fossil botany is undertaken by Prof. Lesquereux. The volumes already issued contain descriptions and figures of the invertebrate fossils by Mr. F. B. Meek and Mr. W. M. Gabb. It thus appears that Prof. Whitney has called to his aid the best available talent in working out the results of the survey in special departments. Meantime, the field-work, and the elaboration of the geological and topographical data collected, are going on rapidly under his direction. * * * Of the maps of the California survey, there have appeared hitherto those of the Yosemite valley and of the High Sierra in its vicinity (in the Yosemite Guide Book), and that of the region adjacent to the Bay of San Francisco, the last on a scale of two miles to the inch; a much larger map, including about 60,000 square miles of the central part of the

State (occupied by more than nine-tenths of its population), is far advanced, one of its four sheets (the S. W. corner) being already engraved, and a second (the S. E. one, containing the highest part of the Sierra) in the engravers' hands. This is on a scale of six miles to the inch; it will be issued in duplicate, as geological and as a topographical map. Another, of the whole State, at eighteen miles to the inch, is finished, and is intended to serve as a preliminary geological map, and to accompany the second volume of geology, of which the printing will be begun next summer. Among the regions which have been recently receiving particular attention is that of the ancient river-channels, on the western slopes of the Sierra, which a party has for a long time been engaged in exploring and mapping, and on which a full report is soon to be made; also, the White and Inyo ranges of mountains, east of the Sierra and of Owen's valley; and the vicinity of Clear Lake, in the northern coast ranges."

FUNGOID ORIGIN OF CHOLERA DOUBTFUL.—The report of Dr. T. R. Lewis in, reference to the cholera inquiry now proceeding in India under direction of the Army Sanitary Commission, is noticed in *Nature* for March 16th. The investigation has so far been limited to facts bearing upon the theories of Hallier and Pettenkofer. The former held that cholera was due to the introduction of a fungus resembling the rye fungus of Europe, and probably present in diseased rice in India. "The general conclusions of Dr. Lewis upon this portion of the inquiry are:—1. That no cysts exist in choleraic discharges which are not found under other conditions. 2. That cysts or 'sporangia' of fungi are very rarely found under any circumstances in alvine discharges. 3. That no special fungus has been developed in cholera discharges, the fungus described by Hallier being certainly not confined to such. 4. That there are no animalcular developments, either as to nature or proportionate amount peculiar to cholera, and that the same organisms may be developed in nitrogenous material even outside the body. Lastly, that the supposed debris of intestinal epithelium is not of this origin, but appears to result from effused blood plasma. Unless these conclusions are materially modified on subsequent inquiry, they must be considered as disposing of Hallier's theory of cholera. Should, however, Dr. Lewis's further investigations prove that Hallier's fungus is present in choleraic discharges and in diseased rice as a constant, we should still require scientific proof that cholera was caused by the action of this fungus and by nothing else."

ELECTRIC DISCHARGES THROUGH GASEOUS MEDIA.—At the Royal Society's *soirée*, March 11th, Mr. C. F. Varley exhibited an experiment in illustration of a paper read by him in January:—"In a Geissler's tube, containing highly rarefied hydrogen, a small filament of talc was hung by a single horizontal fibre of silk. Two aluminium rings, separated an inch and a quarter, formed the electrodes inside the vacuum. This tube was placed longitudinally with and over the horizontal poles of a large and very powerful iron horse-shoe electro-magnet, made of a bar four inches in diameter and four feet in length, and wrapped with nearly 2 cwt. of thick copper wire. A small induction coil sent electric discharges from one ring to the other, producing a brilliant blue light around the negative pole, the positive pole being dark. The moment the magnet was charged, by means of thirty cells of Grove's nitric acid battery, each cell containing twenty square inches of platinum foil, the electric luminosity in the tube, which beforehand was diffused, gathered up into an arch extending one and a half inches beyond each ring, forming altogether a well-defined arch about four inches in length. This luminous arch follows exactly the course of those magnetic rays which traverse through the negative pole. By shifting the tube the piece of talc can be brought at pleasure in or out of this luminous arch. Neither the electric action nor the magnet *per se* produces any motion upon the talc; but when the tube is so placed that the luminous arch strikes against the talc, the talc is repelled as much as 30° from the perpendicular. The electric current is passing simply from one ring to the other inside the tube, but the luminous arch in question where it strikes the talc is on the other side of the ring and where no electricity is flowing."

CORRESPONDENCE.

The San Diego Mines.

[Written for the Press.]

EDS. PRESS:—As I frequently see statements in the Press and other newspapers, headed "good return," "rich yield," stating that mines in certain localities in this State are yielding from five to fifteen and thirty dollars per ton, and in one instance the extraordinary yield of seventy-four dollars per ton, I thought I would write you a few facts with regard to our mines in this region, as it seems very little is said, or known, about the richness of our ledges in this far-off country. This, I presume, is attributable to the fact that no capitalist has invested one dollar in the district, and no stock operator or member of the Board of Brokers has any interest here; and whatever we have or can show, has been developed by men prospecting and mining without any means except their hands to open and develop their claims. And yet I believe we can defy competition by any mining district on the coast at the present time or any time within the last ten years, for the number of good claims and rich yield of ore.

Julian District Mines—Working Results.

I will give you a statement of the working of a few of our prominent ledges. The Owens Co. have taken out and worked 400 tons of ore, in different lots, the lowest return being \$19 per ton and the largest \$53 per ton, averaging over \$30; the rich specimen ore, worked in hand mortars, is not taken into account. They are down on the vein 80 feet, and have a good, well-defined ledge two feet in width. The Hayden Co. have worked about 300 tons of ore that has averaged over \$40 per ton, one lot going as low as \$11, while all the rest returned over \$30, and from that up to \$50. A great deal of the best ore worked in hand mortars is not taken into this account. The mine is looking well. The Washington Co. have had nearly 100 tons worked, and averaged over \$40 per ton; lowest return \$12, and highest \$117.50. The Van West Co., has worked 150 tons averaging over \$30. The California Co. have had 250 tons worked, which averaged \$15.37½. This includes about 40 tons of dirt sent to the mill and worked by mistake, which returned about \$2.50 per ton. One lot worked from this mine returned \$58 per ton. The shaft is down 70 feet on the ledge, which, at the bottom, is from one to three feet wide and shows free gold.

The Helvetia mine has had 450 tons of ore worked, the highest run being \$57 per ton, and the lowest \$11, and has 50 tons of ore on the dump. The ledge is one of the best defined in the district and has a shaft down 70 feet. It will average from two to three feet in width, with a splendid showing of ore. The Eagle ledge is also well defined, showing a good width, and prospects as well as any ledge in the country; in fact there are few that prospect as well; but it is lying idle for the want of capital, most of the owners having gone off to work until they can get money ahead to open their claim. The Great Eastern is another ledge that has a shaft on it about fifty feet deep. Two lots of ore have been crushed which averaged \$23 per ton. The ledge has now become quite narrow, but the rock is exceedingly rich, showing free gold throughout. Some of it is estimated to contain one dollar per pound. A contract has been let for taking out 100 tons of ore.

Banner District Mines.

The ledges in San Felipe Cañon, Banner District, however, surpass everything in the way of rich yields. The Chapparel Co. have worked in an arastra 14 tons, which averaged over \$85 per ton. McKean's mine has yielded about 40 tons, at an average of over \$50. The Antelope, or Pat O'Day Co. have been working about 500 pounds of ore per day in their arastra for nearly two months, which has returned them regularly an average of \$100 per day. Two of the owners are now in San Francisco purchasing a mill to work on their ledges. The Madden Co. have just made a clean up of 25 tons of ore, which averaged \$74 per ton.

The Kentucky, *alias* Lady's Leg claim are now having ore worked in McMechan's Mill, some of which is literally filled with gold, from a ledge three feet wide. The Atlantic Cable has had one lot of 13 tons worked, averaging over \$50 per ton. The Redmann ledge and claim has had about 100 tons of ore crushed, returning over \$25 per ton, in McMechan's mills, from which about 25 tons of the richest had been

selected and worked in an arastra, paying about \$75 per ton. This ledge is the first discovered in San Felipe, and shows the largest deposit of ore in the cañon. The Bailey claim on the end of the Redmann ledge is opening finely. They now have a showing of ore eight or ten feet wide, much of it showing free gold. They are now hauling ore to McMechan's mill for crushing. McMechan has purchased one-half (500 feet) of the Redmann claim, and has a fine prospect of keeping his mill running constantly on his own ore. The Blueledge has not had much work done on it yet, except pounding a little of the ore in hand mortars, and is rich in free gold.

New Discoveries.

Much excitement has lately been created here by a discovery called the King Discovery, made about three or four miles south of the Redmann claim. It is extraordinarily rich, there being many tons of specimen ore lying around loose on top of the ground. It consists of three ledges. The upper one is next to a bastard or shelly granite; the middle has a stratum of porphyry along the lower side; and the lower and smallest is in slate, and is the richest of all. Nearly the whole ledge shows free gold, and a portion of the vein is of a decomposed, soft, chalky consistence and pulverizes very easily, in fact, a large portion of it can be pulverized by the pressure of the hand. I took some specimens from the ledge, a day or two ago, to send you, as it is a singular deposit and I would like to have your opinion of it. I will send it by the first opportunity, (as we have no express running here now, Wells, Fargo & Co. having drawn off,) properly labeled. These ledges will no doubt all come together a few feet beneath the surface. The largest ledge (about two feet wide) prospects in free gold splendidly. They have also found the extension South rich at the depth of ten feet.

Two men came here, one week ago, with three sacks of ore, and left a small sample at one of our stores, which contains a good proportion of gold mixed through the entire mass. They could not be induced to tell where their ledge was, saying they were not ready yet, but it is supposed to be still south of the King ledge.

Extent of Mines—Prospects.

All of our richest mines are on the same belt, extending south, from this place, doubtless to the rich mines at San Rafael, Lower California, as old settlers say that for many years gold was known to exist on this belt, all the way down, to Lower California, but no prospecting has ever been done until after this district was discovered. Here is a wide field for the California pioneer miner to prospect in, with more natural advantages than any country I have ever seen, for working mines—wood, water, etc., being abundant in this (Julian District) and San Felipe, and, in fact, for a long distance south.

We hope since the passage of the Southern Pacific R. R. bill, which road will pass within 30 miles of us, and the San Francisco branch within ten miles, that some of the large operators in mines and mining stocks will come to this district and see for themselves; and if any mining district in the State can show a better, or as good, a record as Julian and Banner districts of San Diego county, we would like to hear from them.

The dullness of the mining interests here is attributable to the fact of the Cuymacca grant owners attempting to survey us into their limits, but late decisions of the U. S. Land Commissioner and advice of our attorney, give us reason to believe that the decision will be made in our favor within one month. San Felipe or Banner District is free from grant swindles.

There are many other items of interest that I would like to mention, but I have already monopolized too much of the space in your valuable paper and will therefore close.

Julian City, Mar. 23, 1871.

Notes of Travel in Amador County.

[Written for the Press.]

Amador and Summit Mines.

The Amador Co.'s works are situated in the suburbs of Sutter Creek. The stock of the company is principally held in San Francisco, and Michael Reese and M. S. Latham are the heaviest owners. The company claim 1,800 feet on the ledge. They have two sets of hoisting works, each of which is run by an engine of 80-horse power. The upper (or old shaft,) is down 1,250 feet, on an incline of 71°; at that depth the ledge is 8 feet thick. Their new shaft, now in course of construction, is

down 950 feet on the same incline as the old shaft, and built in three compartments. From its appearance, it is the most substantial shaft in the vicinity. The following are the present officers of the company: M. S. Latham, (President;) David D. Colton, (Vice-President;) M. Reese, (Treasurer;) L. Schumacher, (Secretary;) John A. Steinberger, (Superintendent;) M. S. Latham, A. Goldsmith, D. D. Colton, M. Reese and David Fay are the Trustees.

The company own three quartz mills; one of 40 stamps, run by steam engine of 75-horse power; the other two of 16 stamps each, run by water power, and at present rented to outside parties. The 40 stamp mill is run by the company, and crushes daily (24 hours), 80 tons of rock; 100 men are regularly employed.

This company mined 32,294 tons of rock for the 15 months ending January 1st, 1869, which averaged \$21.56 per ton. Their net dividends for that year amounted to \$340,400. For the year ending December 31st, 1869, 32,510 tons were crushed, paying its stockholders a net dividend of \$384,800; for the year ending January 4th, 1871, the stockholders received \$111,000 in dividends.

The Summit mine (south extension of the Amador), near Sutter Creek, is owned by Hall McAllister & Co., of San Francisco, and superintended by A. Tibbits, Esq. This claim is 1,400 feet in length, and has a fine hoisting works run by an engine of 45-horse power. Two shafts are sunk within 110 feet of each other; one is down 300, and the other 500 feet, on an incline of 45°. This mine was first struck in 1869, and from a chimney down 165 feet, some \$30,000 were taken out. At that time the ore run from \$16 to \$32 per ton. It is now only being kept dry, awaiting the coming in of the Big Ditch (spoken of in my last), so that the works can be run at a less expense. The object will be accomplished by July 1st, 1871.

Maxwell Mine—Chlorine Works.

The Maxwell mine, situated close by the above mentioned, is owned by an incorporated company. Gen. D. D. Colton, of San Francisco, is President; Capt. George Wallace, Secretary, and D. T. Davies, Superintendent. This claim runs north and south, and is 2,000 feet long. The hoisting works are run by an engine of 20-horse power, over a shaft down 750 feet, on an incline of 75°. At that point a cross-cut, of 70 feet reveals a ledge 9 feet thick; they get out from 45 to 50 tons per day, and are working 25 men. The rock is crushed at the Badger and Rose mills, the two 16-stamp mills mentioned above, which they rent of the Amador Co., which are situated one mile distant. This rock is low grade ore, averaging from \$5 to \$6 per ton, but is easily mined and crushed.

Breadlove & Tarr's chlorine works, situated one-half mile north of Sutter Creek, are very complete in every particular, and cost some \$3,000 to erect. The furnaces (three in number) are situated one above the other, like steps. The upper one first receives the sulphurets (after they have been separated from all other foreign matter) for drying; the next below this, receive and thoroughly roasts them. In the third or lower one, the sulphurets then receive the amount of heat that, in the judgment of the operator, is necessary. In this last furnace, a heat sufficient to melt any kind of ore can be produced. After this the ore is put into the leaching tubs, and subjected to the action of chlorine gas introduced from the bottom of the tubs. The time for this portion of the process to work depends entirely on the quantity and quality of the sulphurets. The metal is dissolved in this tub by the gases, and from there is run off into the settling tubs, thence to the retorts. The capacity of the works is 2½ to 3 tons daily; the charge is \$20 per ton.

Messrs. Belden & Jones are the possessors of the same kind of works, of similar capacity, situated three-quarters of a mile up Sutter Creek, from the village.

LUMBER.—Geo. Allen, Esq., of Sutter Creek, furnishes (or disposes of) 1,000,000 feet of lumber annually to the inhabitants.

Inventions.

Messrs. Wildman & Marble, of Sutter Creek, are the general agents of the Pacific coast for Wolf's Patent Wood Horse Collar, a few of which I saw in use. They claimed for it that it was very convenient, haims and collar being both in one, and there being only one fastening instead of three. Once fitted to the horse, it will not make the shoulders sore, nor will it change its position; while it will last five times as long as the common kind.

The "Mystic Protector" is a very ingenious contrivance for protecting the vital parts of a watch in case of accident by fall-

ing or violent concussion. By no possible means can the pivots, jewels or ruby-pin be broken (without demolishing the entire watch) by falling, with the above protector attached. Geo. Ramsey, of Clyde, Ohio, is the inventor, and H. T. Barnum the agent for the Pacific coast.

Medeon and Keystone.

The Medeon mine, situated midway between Sutter Creek and Amador City, is owned and superintended by L. R. Ponndstone; hoisting works are erected upon the same, and run by horse power. This mine was worked as early as 1857, and paid, as far as worked at that time, about \$30 per ton. Since that time it has been idle until now. Six men are at present employed sinking a new shaft, which is now down 75 feet. At this point they have found a ledge four feet thick, and still increasing, the prospects of which are quite favorable.

The Keystone mine is situated at Amador City. The stock is principally held in San Francisco. James M. McDonald, of S. F., is President, and S. Moore, Esq., Superintendent. The Co. claim 3,000 feet of a ledge; their improvements consist of two sets of hoisting works and a mill; the latter, containing 40 stamps, is run by an engine of 125-horse power. The hoisting works are also run by steam—one by an engine of 20 and one by one of 80-horse power. They have two principal shafts sunk upon the ledge. The north shaft is down 346 feet, on an angle of 30°, and the south shaft is down 500 feet on the same angle. Four hundred feet down, the vein runs from ten to 30 feet thick. They regularly employ 100 men, and crush daily (24 hours) 80 tons of rock, which, for the past year, has averaged \$16 per ton.

Orig. Amador—Fiddletown—Ditch.

Original Amador. This mine is situated in the suburbs of Amador City, and is owned by J. A. Faull & Co., (a joint-stock association). J. A. Faull is Superintendent. They claim 1,200 feet of ledge; have a fine set of hoisting works run by a steam engine of 25-horse power. A shaft is sunk 360 feet; at that point a ledge 3½ feet thick is found. Twenty-one men are regularly employed, getting out from 10 to 15 tons of rock daily. They are not crushing at present but are preparing to erect a mill of their own. The rock is said to average \$30 per ton.

Fiddletown, distant from Drytown ten miles, contains about 300 inhabitants and is very improperly named—there not being a musical instrument in the place. This town is the only one I recollect of now that has passed through a series of 18 years without a fire. Purinton's ditch (formerly known as the Consummes), which furnishes this district with water, receives its supply from the South Fork of the Consummes river 22 miles from its destination. Its capacity is 1,000 inches. Thirty miles of distributing ditches are connected with the same. This ditch was begun in 1853 and finished in 1856, and cost \$100,000 to construct. It is still a good piece of property for its proprietor (Mr. C. A. Purinton), although this district does not contain over one-third as many inhabitants now as it did five years ago. L. F. MC.

Crystallized Carburets.

[Written for the Press.]

EDS. PRESS:—Many years ago I read in a reliable German paper an article explaining the way to obtain crystallized carburets. Not having had the opportunity of trying it myself, I give you the particulars for the benefit of those readers of your valuable paper who may wish to try it.

If the sulpho-cyanides of iron, copper, lead, zinc, bismuth, silver, tin or manganese, are heated in a closed vessel, nitrogen and sulphurets of carbon will escape, and the residue will be a simple carburet. If the cyanides of the above metals are treated in the same way, only nitrogen escapes, and the residue consists of a carburet with two equivalents of carbon. These carburets form a fine, dark powder, which is very combustible, but is neither fusible nor soluble in water.

But if you wish to obtain them in a crystallized shape, place the above cyanides or sulpho-cyanides, after having dried them completely, in a glass tube (whose extremity has to be bent at a right angle) and heat them on a small sand bath, until the temperature required for its decomposition is reached. At the first sign of decomposition, diminish the fire, and keep only a gentle heat, until the decomposition is completed. After this treatment the carburets will not appear as dark powders, but as brilliant, transparent and colorless octahedrons, which optically resemble diamonds and also cut glass. E. PRIQUE.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, April 1st: Globe on Monday next will be running in good shape. The ore coming out is said to be fair grade and easily crushed and concentrated.... Mt. Bullion tunnel, now in over 1,800 feet, is passing through a porphyry containing iron pyrites.

TARSHISH.—The two leading mines of the lode are carrying on a smart rivalry as to which shall show the richest ore. The Schenectady and Monitor No. 3, are nip and tuck.

ITEMS.—*Chronicle*, April 1st: We learn that a body of good ore has been struck in the Alpine tunnel. The work is progressing satisfactorily.

AMADOR COUNTY.

ITEMS.—*Ledger*, April 8th: On Saturday, the Marklee mine after a run of twenty days with twelve stamps, cleaned up thirteen thousand dollars' worth of amalgam.

NEW DRIFT.—The Kennedey Co. have commenced the survey of a ditch from their mill to Sutter Creek, where water will be procured for the Amador Canal Co. The Kennedy mill, which has been lying idle for a long time, may now commence crushing again in four or five weeks.

CALAVERAS COUNTY.

MINING JOBS.—*Chronicle*, April 8th: Mullen & Co., near Worth's hill, who recently struck gravel through a 1,100-foot tunnel find that they will have to sink a shaft thirty feet to reach the bottom of the channel. Water is troublesome.... Paul & Co., near the Junction, are employing twenty to thirty hands and doing tolerably well. Their tunnel is nearly three thousand feet in length. The lead is wide and the gravel easily mined.... Colby, Currier & Co., in Old Woman's Gulch, are getting their hydraulic in shape.... Nothing done at the What Cheer mine. Work will be resumed as soon as timber can be procured.

....The Hughes Bros., below, have been obliged to suspend operations on account of water.... Shaw, of Chili Gulch, has cut Stockton ridge nearly in two, and shows no signs of letting up.... Brackett & Co., on the opposite side of the gulch are again working regularly. The lead is very crooked, and difficult to trace. The gravel is rich, however.... We understand that the parties working the old Calaveras Tunnel claim are doing well.... The French Co. that purchased the old Paul claim is reported making money.... The Union Shaft Co. have again been compelled to shift their quarters, sink a new shaft and are now bailing out the water. Corral Flat, in which the Co. is working, is perforated with shafts filled with water, a number of which will have to be drained before the bedrock can be reached.... Megaw & Co., on the west side of Stockton ridge, are running their main tunnel ahead and getting gravel that contains some gold.... At Sport hill all the hydraulics are in active operation.

THE "BIG MINE."—The parties in San Francisco who recently purchased, have made arrangements for continuing the development of the lead. H. H. Sheldon, who has had large experience, has been selected as Supt. A shaft ninety feet in depth has been sunk, and we understand it to be the intention to continue the sinking, as long as practicable, before erecting machinery. Parties inform us that the lead shows splendidly in the bottom of the shaft. The price paid was \$25,000.

MACHINERY.—The Lewis Bros. are erecting an arastra, of the Thoss pattern, to operate in conjunction with their mill. A portion of the machinery is now in town awaiting transportation.

CLARK'S QUARTZ MILL, at Railroad, is kept constantly running. We understand that the machinery works to a charm. Rock from Poe's mine is being crushed.

ELDORADO COUNTY.

CLARKSVILLE.—*Placerville Democrat*, April 8th: We miners are not all dead yet. Some are doing well. Taylor & Brown not long since found a piece valued at \$205, and they have been making good wages all along. To-day they cleaned up and had about \$40.

INYO COUNTY.

CYCLOPS.—*Inyo Independent*, April 1st: "Happy Jack" left at this office specimens of gold rock from the Cyclops mine, which surpass anything in the way of rich ore. The owners of the Blue Bird contribute several beautiful specimens from the tun-

nel, at a depth of eighty feet from the surface. These are of silver, and resemble some of the best Cerro Gordo ores.

SAN CARLOS.—The last run of the mill, was made on 30 tons of ore from the Romelia, one of the company's mines, and resulted in a net return of \$64 per ton. The company are taking steps to procure a United States patent.

DEEP SPRING MILL.—The furnace of Hiskey & Walker fires up to-day, and the mill starts on Monday. Prospecting is going on with great activity, and new strikes are daily reported.

LASSEN COUNTY.

BIG VALLEY.—*Cor. of Sage Brush*, March 20th: The Providence Co. have sunk a shaft thirty feet west of their ledge five feet square and forty-eight feet deep. The rock is very hard, and appears to be the casing of the ledge, containing considerable gold, and some silver. Experts here differ in opinion about the value; some say it will work two hundred and others two thousand dollars to the ton.

NEVADA COUNTY.

EMPIRE.—*Grass Valley Union*, April 4th: The main shaft is 1,000 feet deep on the incline, and there are ten levels. In a short time sinking will commence for the 11th. The mine employs 100 men, of whom 30 work on the night shift. All the hoisting of ore is done in the day time. The mill is kept running night and day. A few days ago very rich specimen rock was struck; the pieces being rich in free gold. The new mill operates to the satisfaction of the owners.

GOOD GRAVEL.—Yesterday the Webster struck into richer gravel than they have yet found. This prospect for four bits to a dollar to the pan. The gravel in W. & Co.'s claims is 8 to 10 feet in thickness in all the drifts which have been run.

ALTA NUMBER THREE.—We yesterday saw a fine specimen of cement from the northeast drift of the Alta No. 3 mine. The mass of cement shows grains of gold stuck around upon it.

EUREKA MINE.—Same of 7th: The Mill for twelve days' run, including Saturday, gave \$22,000 worth of gold. This does not include any from the sulphuretted works. The twenty four days' run gives \$44,000, which is less than any previous run for a long time.

NORTH BLOOMFIELD.—*Cor. of Transcript*, April 5th: The youth of this place is returning. New buildings are going up. The N. B. G. M. Co., the cause of this change, are taking out large amounts of the shining metal. The Yuba Co. are putting up substantial machinery. They will commence sinking in a few days. Fred de Beaur & Co., the Artesian Co. and the Wales Co. are all getting their claims in condition to work. R. C. Black has been running his claims, with splendid gravel, and would have made an excellent clean up had not Chinese robbers appropriated two-thirds.

BIRDSEYE CREEK CO.—Same of 6th: The English Company which purchased the claims and water ditch of Ed. Williams, and the claims of Neece & West, at You Bet, entered in possession on the 1st inst.

Sixty tons of quartz from Burns' claim, the old Potosi on Gold Flat, is being hauled to Stiles' mill to be crushed. This is the third crushing from this lead.

BALTIC.—*Gazette*, April 10th: This Co. on Randolph Flat, began to clean up after a three weeks' run, on Sunday. Their claims are opposite those of Webster Co. The last clean up showed \$30 per day to a man. On Saturday Mr. Walker panned out two pans-full of dirt from which he obtained about \$2 in gold.

PLACER COUNTY.

OPHIR DISTRICT.—*Stars and Stripes*, April 6th: Our report—based on estimates—of the last clean up at the St. Patrick, set the amount at \$12,000 to \$13,500 as the yield from much less than 200 tons of quartz, which was considered the best crushing that had ever been obtained in this section, of unselected rock on an extensive scale. But we have since been informed that the final returns much exceeded the highest of those estimates. At Greene's (the old "Mallet") ledge, supposed by some to be on the Good Friday ledge of the Ophir Co., they have within the past week taken out a large quantity of surpassingly rich rock. Many specimens seem to be almost half gold. The amount of gold in the quartz extracted within the week is variously estimated at from \$12,000 to \$20,000.

The same says that the mining interest in the county generally, shows more life than for 15 years past, not in quartz only, but in tunnel and hydraulic operations as well. The prospect of the Tahoe Canal has given new life to the divide between the North and Middle Forks of the American. The Yule claims, above Last Chance, have

been incorporated, and are in shape for work on a vast scale. The Morning Star claim, adjoining, will also be incorporated. So will the Weske claim, at Turkey Hill. The Mountain Gate claims, at Damascus, which have paid for 15 years, still pay about as well as ever. The Jersey, at Forest Hill, will be incorporated. A large interest has been sold at a round price, the former owner and present manager agreeing to expend \$75,000 in putting the claim in shape for larger operations. The Morning Star claims, at Iowa Hill, still pay well.

DILLON.—*Herald*, April 8th: This ledge was recorded two years ago, but never opened until a few weeks since. The owners, Dillon, Cowan and Himes, have a shaft down thirty-five feet. They had six hundred and fifty pounds of the quartz run through the Empire mill the other day, which yielded within a fraction of \$700, or at the rate of about \$2,000 to the ton. They are now taking twenty-five tons to be worked, which Mr. D. thinks will go \$100 to the ton. The ledge is three miles from here on Rock Creek.

The Graves-Putnam quartz mill, on Baltimore ravine, is running on ore from the Croesus ledge, for the Greek boys, with a prospect of a good clean up.

SISKIYOU COUNTY.

ORO FINO.—*Yreka Union*, April 5th: We learn that the miners at Oro Fino and Mugginsville have more water than they can use. It is thought there is more snow on the Salmon mountains, than for four or five years.

HUMBURG.—The miners on this stream are busily ground sluicing. They will be able to make a tolerably good season's work. It will be sometime yet before they commence to wash up.

TRINITY COUNTY.

JUNCTION CITY.—*Journal*, April 8th: Wm. Clothier & Co. last week struck a very rich deposit on the bench below Keno Flat, and it is believed have just as good ground as that above them. Keno Flat is paying well, and so are all the claims that are being worked.

CANYON CREEK.—J. A. Berger is doing better than ever before. He manages to pick up about \$50 per day to the hand in nuggets, and lets the "small fry" pass into the bed-rock ditches and flume. Adam is certain that this pay will hold out, as he has already prospected several hundred feet in advance of where he is now working.

BAD.—On Wednesday, the reservoir of Sheridan Brothers on Simpson Gulch, broke and the water passed through their claim, carrying everything before it. Their sluice boxes, containing their whole winter's work, were swept away, together with tools and other mining appurtenances, at one blow.

NEW RIVER.—From a private letter we learn that the miners generally are doing well, and have had a great deal more water than in other portions of the county. John Keach is reported to have done exceedingly well.

Nevada.

COPE DISTRICT.

ITEMS.—The Elko *Independent* of April 8th gives these items from a private letter:—The Argenta is getting out splendid rock from its old tunnel; its new shaft is down and it has commenced running for the ledge at a depth of 250 feet. The Independent is the richest thing ever struck in the camp. I have a specimen of half a pound, all horn silver, no rock about it. I saw a specimen that weighed a pound and a half, all horn silver. The owners of one of the mills offered \$3,000 for a ton of this ore which had been hauled to their mill. The Robert Emmet is turning out splendid ore. Samuel Hendy is taking out No. 1 ore from the Pride of the West. Great Eastern, U. S. Grant, Idaho and Nevada, are all turning out splendid rock. Mr. Poole is chloriding near the Excelsior, and getting some of the richest float I have ever seen.

MINERAL HILL.—*Cor. of same*: In March were shipped, per Wells, Fargo & Co., 79 bars of crude bullion, valued at \$120,781, and this from one 15-stamp mill.

ELY DISTRICT.

REVIEW.—*Record*, April 2d: The mills at Meadow and Dry Valleys are running day and night but do not appear to reduce the amount of ore. With a few more mills we could make quite a respectable showing. We do pretty well as it is—shipping more bullion than any camp in the State outside of Virginia City, and that by the employment of only four mills, one of 20, two of 10, and one of 5 stamps.

The bullion shipped for the week ending April 1st, amounts to \$60,693.39.

ITEMS.—Meadow Valley Co. is shipping 60 to 70 tons of ore daily and turning out

more bullion than ever. They are putting up the finest ore dump in the district.... The new stamps and pans for the Burks mine are in place.... The Bowery has begun again and has richer ore than ever.... Washington takes out 30 tons of \$300-ore daily.... Sale of the Washington fell through; the \$30,000 not being forthcoming on time.

SILVER PARK.—Same of 6th: We learn that the camp has now only about fifty inhabitants and is very dull. Sam Ferguson is running his 12-stamp mill in the daytime on rock from Pioche and neighboring districts. The ledges still show well.

EUREKA DISTRICT.

THE BUTTERCUP CO.'S MINES.—*Sentinel*, April 8th: The ledge itself was cut last week in the Mountain Boy. It is five feet wide and very rich. That the ore will smelt \$700 to the ton of base bullion there can be no doubt; as all the assays indicate a much higher figure. About one ton per day, to the man, can be obtained. It would seem to be inexhaustible. In the Kentuck, another of the Co.'s mines, a tunnel 600 feet in length, to strike the ledge 100 feet below the present workings, will be run. Col. Robbins, the Co.'s General Superintendent, has a piece of carbonate ore weighing 800 pounds which is valued at \$600 per ton. It was taken from the last workings of the Mountain Boy, and but for the difficulty of handling in the incline, and transportation to the wagon road, pieces of several tons weight could be obtained.

EUREKA CONSOLIDATED.—*Cor. of Reno Journal*, April 8th: The furnaces of this company turned out \$100,000 worth of bullion during the month of March, netting about \$40,000 to the credit of dividend account. The furnace, separating and refining works of Ogden, Dunne & Co., are the best in the district. The furnace will commence running out bullion to-day, and the separating and refining works will be in operation in a week or two.

HUMBOLDT.

GALENA.—*Cor. of Register*, April 8th:—The White mine gives from three to eight tons of \$400-ore daily. The Blue Leds tunnel is in 125 feet. The ore is worth \$375 per ton. They will commence shipping ore for reduction as soon as the roads will permit.

CENTRAL.—The King and Dennison mines is doing remarkably well. The ledges is three feet in width and shows a splendid body of ore. They are shipping to Reno, and the results are satisfactory. Clark Bros., of the Railroad ledge, are taking out considerable ore.

STAR.—The Sheba is looking better than ever. The Arizona ships fifty tons of \$700-ore per month to San Francisco.

GOLCONDA.—L. D. Webb, of the Second South extension of the old Golconda, states that the more it is developed the better this ledge looks. This vein is well-defined and the average width 3½ feet. He has on this dump several hundred tons.

ARIZONA CO.—*Silver State*, April 8th:—The new mill will be finished by the middle of May. It will run through 40 tons of tailings daily. Of these there are thousands of tons on hand. Six Wheeler pans, three settlers and two concentrators will constitute the mill at present. When the tailings are exhausted, stamps will be put in.

REESE RIVER.

MONTEZUMA DISTRICT.—*Reveille*, April 5th:—Rich discoveries are being made. Veins four feet, the ore of which, without sorting, will work \$500 per ton, sounds incredible; but this is told us by gentlemen lately arrived, who are perfectly sincere. The mill of McGlew & Dawley is doing first-rate. A large lot of bullion was brought here by Mr. McGlew. Everything from that quarter has a healthy appearance.

STAR OF NEVADA.—Same of 7th: This mine, on Union Hill, is yielding ore of high grade. It has long been the property of J. C. Bauer who, in addition owns other parallel veins south. The mine is being worked through a tunnel which it is contemplated to push far enough into the hill to intercept the other veins. A lot of thirty tons just extracted has been worked at the Manhattan mill. We have seen the mill returns of ten tons, and they show \$1,125 92 per ton for first class, and \$302 77 for second class.

WASHOE.

HALE AND NORCROSS.—*Enterprise*, April 2d:—Daily yield 200 tons.

SAVAGE.—The only item of interest is the connection of the drift on the lowest level with the Hale and Norcross. The work of repairing the two north compartments of the shaft, will be completed in two weeks. From 100 to 120 tons of very good milling ore is daily extracted.

FOUR TONS OF SILVER.—Same of the 4th: Yesterday the Yellow Jacket mine, deposited with the Bank of California four tons of silver, worth \$200,000.

GOULD AND CURRY.—On Friday the hoisting works shut down for repairs, only the pump being kept going. The foundations of the two hoisting engines are being made more substantial.

WOMEN MINERS.—Same of 8th: A tunnel is being run south of the old Central Mining Co.'s, tunnel, for the purpose of prospecting the Comstock, which has never been explored in that section. A company of ladies have the entire management, the work being superintended by a lady of this city.

MILLS.—The Gold Hill News says the Rhode Island mill is running steadily on ore from the Crown Point mine. The Pacific mill is being repaired. The Petaluma is shut down for a complete overhauling.

ITEMS.—Same of April 8th: The Kentucky is yielding very good ore from the central portion of the mine, where the fire was. The Chollar-Potosi is yielding better ore and more bullion than ever, and the Halo & Norcross shows well in all its ore resources. Our mines, generally speaking, are looking and doing better than they have for a long time. The Chollar-Potosi pays a dividend of \$10, the Halo & Norcross \$5, and the Yellow Jacket \$2.50 per share. The Kenosha Mining Co. have put an injunction upon the Sierra Nevada Mining Co. The drift from the Daney shaft is progressing at a satisfactory rate toward the ledge, although in hard granite at present. It has about 87 feet further to go in order to reach the ledge.

WHITE PINE.

ITEMS.—News, April 8th: The tramway is not yet ready, owing to the rough weather. Shaft in Original Hidden Treasure is 48 feet deep. The mine looks well. The new ore-house of South Aurora is nearly completed. Very high grade ore in Ward Beecher Consolidated. Noonday is down 128 feet, and the ore looks better than ever. Genesee has improved steadily for six weeks. Bourhon is not worked out; looks as well as in its best days. Empire has a good showing. Six tons of ore taken out, worth \$100 per ton. A larger force will be put on Silver Plate. Work to be started on Grant & Colfax. Four men at work on El Dorado. The ledge is very large and runs \$30 to \$40 per ton with very little assorting. Of the base metal mines, Miner's Dream pulped \$111.50 per ton at Big Smoky mill. Trench has on dump a large quantity of high grade ore.

TEM PIUTE.—Good reports from this district. The Crescent mill, of 10 stamps, 16 miles from the mines, is running steadily. Col. Baker has opened three mines, which look promising. The McMurray and Thompson mines are both opened, and ores from the McMurray assay \$1,000 per ton. This, it is claimed, without selecting. There is a drawback to the district, owing to the great distance to wood and water; but citizens there feel confident of the future, and claim that Tem Piute will in time overshadow Pioche.

Arizona.

BRADSHAW.—Prescott Miner, April 1st: New discoveries are every day being made, and the numerous shafts and tunnels that are being driven in the Tiger, Eclipse, Cougar, Del Pasco, Hunter, and other lodes, are developing said lodes to the entire satisfaction of owners. Among the latest discoveries is the Yreka, a lode containing immense quantities of gold and silver. Specimens brought in by Revoirs and others, are as rich as any we have ever seen. Near the Del Pasco, every gulch was filled with placer miners who were making \$5 to \$20 per day, with rockers and pans. The dirt below the Yreka lode, also, prospects big.

HASSAYAMPA DISTRICT.—Work upon the Davis lode is being pushed. Last week two men in three days, took out 25 tons of ore. The ledge is 8 feet thick. Messrs. Clark and Davis gave us less than a pound of rock, which we crushed, getting therefrom a teaspoonful of silver and gold. R. W. Groom says it is the richest ledge he has ever seen.

WALKER.—Arastros working away. Sluice-head of water in the creek. Placer miners making from \$5 to \$20 per day.

Colorado.

ITEMS.—Georgetown Miner, April 6th: A large number of lodes in Clear Creek county have lately been sold by W. B. Rockwell, of Central City, for \$1,000,000 to the Colorado Smelting and Mining Co., of New York. The silver lullion from Georgetown during the past week aggregates in value \$15,551.53, coin. Mo-hawk furnishes ore that assays \$2,200 to

the ton. The Brown Co., shipped last week a button of silver weighing 4,184.46 ozs. Troy, valued at \$5,140, coin. The returns for the last six days, shipments from the Stewart Co., aggregate \$9,157.06 coin, the largest weekly shipment since the mill commenced treating ores. We have never seen the time in the history of silver mining in Colorado when as many mines being successfully worked as now.

ITEMS.—Register April 5th: The Kansas lode has eleven shafts going down, all in fair pay. Miley's mill and the Black Hawk Co's are each dropping stamps upon it, and ten more are kept busy at the New York mill, all for Wheeler & Sullivan. The Gregory Second, is turning out 300 ounces of gold per week. Mead's mill is returning ten ounces per cord. Six different parties are working upon it. The Roderick Dhu ore is running five ounces in the upper level, and the ore from the main shaft, now 350 feet deep, promises much better. The new vein in the bottom of the shaft in the Caribou is 3 1/2 feet wide, and carries from 150 to 200 ounces of silver per ton.

Idaho.

ITEMS.—Avalanche, March 18th: A. P. Minear informs us that the parties who purchased and incorporated the Minnesota will soon arrive from San Francisco to commence operations, among them the well-known Bill Lent, Geo. Hearst and Johnny Boyd. The latter is Supt. We also understand that Mr. M. is about to purchase the Allison mine for a San Francisco company.

MORE JUMPING.—We understand that O. H. Purdy & Co., have taken possession of what is known as the Minnesota mine, which they claim as an extension of the New York.

The Idaho City World says the mining season is very backward and miners are anxiously waiting for the melting of the snow and the opening of the spring work.

WARREN'S DIGGINGS.—Cor. Walla Walla Union, April 1st: Big Meadow has an excitement. Two parties have got down to bed rock, and found fifteen cents to the pan. The McLane new mines produce well. Fifty feet of McLane's claim sold for \$500.

Utah.

The New York Iron Age of March 30th learns that the "Emma" was bought by Messrs. A. V. Stout, A. A. Selover, Gen. Baxter, and Duncan, Sherman & Co., for \$1,500,000, and \$200,000 has been deposited with H. B. Clafin, who is trustee for the owners, to bind the bargain.

Montana.

RADERSBURG.—Helena Gazette, April 3d: We are told that the Iron-clad is now thought to be the richest claim in Montana, and that there are shares which could not be purchased for \$100,000. Nave's claim is paying \$40 per ton from the plates, without including the deposit in the batteries, which were a network of gold last week, and the tailings, several feet below the mill panned out rich.

VIRGINIA CITY.—Montanian, March 30th: McGovern & Co. have commenced work on their bar claims, opposite Nevada, and by the time the frost is out of the ground will have everything in readiness for sluicing. Walt Seovill has been driving a tunnel into the bar on the Nevada side of the gulch, and has struck what he thinks will pay fair wages. Sedman & Co.'s flume will be ready for the first flush of water.

BLACKFOOT.—New North-West, March 31st: Mining began on Monday—Horan & Co., Martell & Kimery, and the Ah Sing Company started up. If the weather is moderate nearly all the claims will start up in a week or ten days. There are 400 or 500 inches of water in the gulch.

CEDAR CREEK.—Mr. Noys returned yesterday. He reports work lively about Forest City, which is absorbing Louisville. It is anticipated work will soon be retarded by an excess of water.

The Independent of April 1st, reports plenty of water and great expectations for the season among the miners of several different localities.

COOKING FOOD FOR ANIMALS is denounced by Prof. Smith in the Rural New Yorker. He contends that it is against Nature, which has fitted their organs for raw food; and the meat is unwholesome. We are sorry to say we think the Professor is learned overmuch. Our domestic animals are taken from Nature and put into artificial life. Much rest is required for the digestion of raw food, which animals, in their native condition, can command; but that rest is denied them when trained to the service of man; hence cooking their root food and their corn is a kindly consideration for their deprivation of liberty.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., April 13.

The Stock Market has been weaker during the past week and very irregular. Amador has sold at \$350. Crown Point has reached its highest point (\$180) and Halo and Norcross its lowest (\$63) for years.

Last Saturday the following local mining incorporations paid dividends for March: Amador, \$14,800; Halo and Norcross, \$40,000; North Star, \$9,000; Yellow Jacket, \$60,000.

Wells, Fargo & Co.'s treasure report for the quarter ending March 31st shows as follows:—

	Silver Bullion.	Gold Bullion.	Coin.
January.....	\$1,237,509	\$1,202,649	\$1,308,089
February.....	1,198,295	1,117,780	1,024,712
March.....	693,838	1,477,946	904,156

Totals..... \$3,039,642 \$3,805,375 \$3,236,957

Of this, \$8,528,962 were from northern and southern mines, \$531,691 from northern coast route, \$212,246 from southern coast route and \$809,075 from Mexico. By other consignees, \$355,250 were received from foreign sources.

The above amounts include all the treasure received in this city through Wells, Fargo & Co.'s Express, as well as the amounts remitted directly to the East from Virginia City through the same channel. No returns of the Virginia shipments East for March have been received, but the amount thus sent is estimated at \$690,000, to be added to the above, to make the report for the quarter complete.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock:

	April 6. Highest.	Lowest.	Apr. 13. Adv. Dec.
Alpha.....	52	10	57
Belcher.....	57	62	50
Chollar-Potosi.....	80	71	75
Crown Point.....	180	150	163
Eureka Cons.....	11	10	11
Golden Chariot.....	37	32	35
Gould and Curry.....	60	60	58
Halo and Norcross.....	81	63	65
Ida Elmore.....	17	15	14
Imperial.....	35	37	32
Kentucky.....	85	85	73
Meadow Valley.....	17	18	17
Orpheus.....	12	12	15
Orig. Hid. Treas.....	8	10	8
Overman.....	5	5	5
Savage.....	67	67	52
Sierra Nevada.....	16	15	15
Yellow Jacket.....	68	69	67

Latest Prices.

(S. F. Stock and Exchange Board.)

	BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	11	12	Ida Elmore.....	15
Amador.....	52	57	Imperial.....	35
Belcher.....	53	54	Kentucky.....	73
Chollar-Potosi.....	74	75	Meadow Valley.....	18
Crown Point.....	11	11	Orpheus.....	12
Eureka Cons.....	11 1/4	11 1/2	Orig. Hid. Treas.....	8 1/2
Eureka.....	—	80	Overman.....	5 1/2
Golden Chariot.....	58	59	Savage.....	61 1/2
Gould & Curry.....	58	59	Sierra Nevada.....	15 1/2
Halo & Norcross.....	66	67	Yellow Jacket.....	67 1/2

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENCY.	DAY OF MEETING.
Alpha Cons. G. H. Mar. 21, \$1.	April 5—April 24	April 5—April 24
Cons. Virginia, Feb. 27, \$1.	April 3—April 25	April 3—April 25
Daney, Lyon Co., Nev., Mar. 25, \$2.	April 29—May 18	April 29—May 18
Empire Mill, G. H., April 1, \$20.	May 8—May 29	May 8—May 29
Gould & Curry, Va City, Feb. 23, \$12.50.	Mar. 30—April 20	Mar. 30—April 20
Imperial, G. H., Mar. 25, \$15.	April 27—May 15	April 27—May 15
Julia, Virginia City, March 31, \$1.	May 3—May 22	May 3—May 22
Mahogany, Owyhee Co., L. T., Mar. 23, \$2.	May 1—May 29	May 1—May 29
Marble Falls, Nye Co., Nev., Mar. 8, \$1.	Apr. 8—Apr. 24	Apr. 8—Apr. 24
Maxwell, Amador Co., Dec. 21, \$2.	Mar. 27—May 18	Mar. 27—May 18
Mountain City, Nev., Feb. 18, 25c.	Mar. 27—April 17	Mar. 27—April 17
Nevada Butte, H. D. Co., Nev., Mar. 8, \$1.	Apr. 8—Apr. 24	Apr. 8—Apr. 24
Noonday, White Pine, Nev., Apr. 10, 20c.	May 15—June 7	May 15—June 7
North America Con. M. Co. Feb. 15, 5c.	Mar. 29—Apr. 27	Mar. 29—Apr. 27
Ophir, Va. City, Mar. 25, \$3.	Apr. 27—May 18	Apr. 27—May 18
Oriental, Sierra Co., Mar. 25, \$1.	Apr. 24—May 15	Apr. 24—May 15
Overman, G. E., Feb. 23, \$2.50.	Apr. 8—April 28	Apr. 8—April 28
Rogers, Storey Co., Nev., Feb. 13, \$1.25.	Mar. 20—April 17	Mar. 20—April 17
Silver Sprout, Inyo Co., March 15, \$6.25.	May 1—Jun 6	May 1—Jun 6
Seg. Belcher, G. H., Mar. 21, \$3.	Apr. 25—May 16	Apr. 25—May 16
Tallulah, Nevada, Mar. 14, \$1.	Apr. 25—May 23	Apr. 25—May 23
Teecumseh, Calaveras Co., April 11, \$3.	May 19—June 6	May 19—June 6
Union, Sierra Co., \$1	April 6—	April 6—
Yosemite, Lander Co., Nev., Apr. 12, \$1.	May 22—June 19	May 22—June 19

MEETINGS TO BE HELD.

Cadmus.....	Annual Meeting, April 17
Monitor and Magnet.....	Annual Meeting, April 20
New Idria.....	Annual Meeting, April 24
Noonday.....	Annual Meeting, April 24
Orig. Hid. Treasure.....	Annual Meeting, May 2
Sierra.....	Annual Meeting, April 20
White Pine Smelting.....	Annual Meeting, April 20

LATEST DIVIDENDS—(Within Three Months).

Amador, \$4.....	Payable April 10
Black Diamond, 3/4 per cent.....	Payable Mar. 6
Chollar-Potosi, \$5.....	Payable April 7
Chollar Potosi, \$5.....	Payable April 14
Eureka, div. \$2.....	Payable April 7
Eureka Cons., \$1.....	Payable Feb. 20
Golden Chariot, div. \$7.....	Payable March 10
Halo & Norcross, div., \$5.....	Payable April 10
Meadow Valley.....	Payable Feb. 9
Natoma, div. 1 per cent.....	Payable April 5
North Star, \$3.....	Payable March 10
Redington, 1 per cent.....	Payable April 1
Sierra Nevada, div., \$1.....	Payable Jan. 16
Yellow Jacket, \$2 50.....	Payable April 10

*Advised in this journal

MULLER'S BRAZILIAN SPECTACLES are just the things for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper, or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscribers and publisher.

San Francisco Retail Market Rates.

FRIDAY, April 14, 1871.

MISCELLANEOUS.

Butter, Cal. fr. lb.	35	@	40	Wool Sacks, new	40	@	50
Pickled, Cal. lb.	—	—	—	Second-hand do	37 1/2	@	50
Do Oregon, lb.	—	—	—	Beet-sks, 22x36	15	@	14
Honey, lb.	25	@	30	Potato Cy. Bags	22	@	20
Cheese, lb.	20	@	25	Second-hand do	15	@	20
Eggs, per doz.	35	@	40	Deer Skins, lb.	15	@	20
Lard, lb.	18	@	20	Sheep sks, w/ on	50	@	75
Sugar, cr. lb.	10	@	12	Sheep sks, plain	12 1/2	@	25
Beet, do, 5 lbs.	10	@	13	Groat skins, each	25	@	30
Sugar, dry, lb.	30	@	35	Plums, dried, lb.	15	@	20
Sugar, syp. lb.	60	@	75	Pears, dried, lb.	15	@	20

PRODUCE, ETC.

Codfish, dry, lb.	60	@	12 1/2	Barley, cwt.	15	@	70
Flour, ex. do, bbl.	70	@	75	Beans, cwt.	2	@	40
Superior, do, 50	60	@	65	Potatoes, cwt.	1	@	20
Corn Meal, 100 lb.	75	@	80	Hay, ft. ton.	15	@	60
Wheat, lb. 100 B.	75	@	80	Live Oak Wood, 100	60	@	100
Oats, lb. 100 B.	60	@	75				

FRUITS, VEGETABLES, ETC.

Pine Apples, t.	50	@	60	Egg Plant.....	5	@	8
Bananas, lb.	3	00	00	Garlic.....	5	@	8
Cal. Walnuts, lb.	20	@	20	Green Peas, lb.	8	@	12 1/2
Cranberries, lb.	75	@	80	Green Peas, lb.	8	@	12 1/2
Cranberries, lb.	4	@	50	Sugar Peas, lb.	12	@	25
Apples, No. 1, lb.	4	@	50	Lettuce, lb. doz.	12	@	25
Pears, table, lb.	50	@	75	Mushrooms, lb.	8	@	15
Oranges, lb. doz.	75	@	80	Headed, lb.	37	@	50
Lemons, lb. doz.	75	@	80	Okra, dried, lb.	37	@	50
Pigs, dried, lb.	15	@	20	Okra, green, lb.	3	@	4
Asparagus, wh. lb.	12	@	15	Parsnips, lb.	3	@	4
Artichokes, doz.	75	@	80	Parsley.....	@	25	
Brussel's sprts., lb.	12	@	15	Pickles, lb. gal.	50	@	75
Beets, lb. doz., ..	20	@	25	Rhubarb, lb.	12	@	15
Broccoli, lb. doz.	50	@	60	Radishes, bunch	12	@	25
Potatoes, sweet, lb.	2	@	3	Green Peppers, lb.	@	25	
Potatoes, new.....	@	56		Red, do.	@	25	
Tomatoes, lb.	50	@	60	Summer Squash	4	@	5
Broccoli, lb. doz.	50	@	60	Marrowfat, do.	4	@	5
Cauliflower, t. 250	@	25		Hubbard, do.	@	5	
Cabbage, lb. doz., ..	30	@	35	String Beans, lb.	@	8	
Carrots, lb. doz., ..	10	@	25	Dry Lima, lb., ..	@	8	
Celery, lb. doz., ..	75	@	80	Spinage, lb. bkt.	25	@	50
Cress, lb. doz bun	20	@	25	Salsify, lb. bunch	25	@	12
Dried Herbs, lb.	25	@	30	Turnips, lb. doz.	@	25	

POULTRY, GAME, MEATS, ETC.

Chickens, apiece	75	@	80	Tongues, pig, ea	@	15	
Turkeys, lb.	20	@	25	Bacon, Cal. lb.	18	@	20
Ducks, wild, lb.	15	@	20	Oregon, do.	18	@	20
Game, lb.	100	@	20	Ham, do.	18	@	20
Teal, lb.	100	@	20	Hams, Cross's a/c	@	25	
Geese, wild, each	37 1/2	@	50	Choice D. field	@	25	
Tame, lb. pair	50	@	60	Whitaker's, lb.	@	25	
From Chicago, lb.	50	@	60	Johnson's, lb.	@	25	
Hens, each.....	75	@	80	Salmon, lb.	10	@	12
Snipe, lb. doz.	125	@	150	Smoked, new, lb.	10	@	12
English, lb. doz.	125	@	150	Pickled, lb.	6	@	8
Venison, lb.	60	@	70	Beef, Cod, lb.	@	25	
Quails, lb. doz.	50	@	60	Perch, water, lb.	10	@	12 1/2
Pigeons, dom, doz	30	@	40	Lake Big Trout	20	@	25
Wild, do, doz	50	@	60	Squid, lb.	5	@	8
Hares, each	40	@	50	Herring, fresh	@	25	
Rabbits, tame, lb.	50	@	60	Sm. kid, 100 lbs.	@	20	
Wild, do, lb. 25	@	25	Tomcod, lb.	@	25		
Spruill, lb.				Terrapin, lb. doz. 50	@	65	00
Beef, tend, lb. 20	@	25	Mokorel, p. k. ea	@	20		
Sig. 20 lb. 10	@	25					
Corned, lb. 10	@	25	Sea Bass, lb. 20	@	25		
Smoked, lb. 15	@	18	Haibaut, lb. 62	@	75		
Forch, lb. 12	@	15	Oysters, 100. 1	@	25		
Chops, do. 12	@	15	Chesp. lb. doz.	@	100		
Veal, lb. 15	@	20	Turbo 20	@	40		
Outlet, do. 12	@	20	Shell, 100. 1	@	50		
Mutton, lb. 15	@	15	Shrimps	10	@	12	
Lamb, lb. 12 1/2	@	15					
Leg, lb. 12 1/2	@	15					
Lamb, lb. 12 1/2	@	15					

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING MARCH 28TH.

MECHANICAL TELEGRAPH INSTRUMENT.—James Gamble, San Francisco, Cal.

WHEEL FOR VEHICLES.—James Harris, San Francisco, Cal.

SKATE.—David Kerr and Asa Ebenezer Hovey, San Francisco, Cal.

GANG PLOW.—John Murray, Silveyville, Cal.

GRINDING MILL FOR ORES.—Jacob S. Niswander, Oakland, Cal.

AXLE AND AXLE BOX FOR VEHICLES.—Ernest Von Jeinsen and James Monroe McDonald, San Francisco, Cal.

SASH-HOLDER.—Barnet M. Whiting, San Francisco, Cal.

ANIMAL TRAP.—James William Fishback How, Douglas County, Oregon.

CHLORIDIZING SILVER ORE.—Eugene N. Riette, San Francisco, Cal., assignor of five-fourteenths interest to Charles A. Stetefeldt, same place, and five-fourteenths to John H. Boalt, Sandusky, Ohio.

TRADE MARKS.

WHISKY.—Daniel V. B. Henarié, San Francisco, Cal.

WHISKY.—E. Martin & Co., San Francisco, Cal.

TEA.—Williams, Blanchard & Co., San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

APPARATUS FOR BURNING HYDRO-CARBON OILS.—J. R. Lee, Grass Valley, Cal. The object of this invention is to provide a device by which a more perfect combustion of hydro-carbon oils is secured, when they are employed in the furnaces of steam boilers, and also to assist and promote such combustion by the employment and utilization of exhaust steam within the furnace. A series of shallow troughs are placed in the furnace, preferably in a transverse position. The oil is fed into these troughs, so as to have little depth, and there burned. A pipe, or series of pipes, arranged around the interior of the furnace, receives a portion of the exhaust steam and throws it into the fire in fine jets; while steam, introduced in like manner behind the bridge wall, serves to increase the draft as may be desired.

BALE-TIE.—J. E. Perkins, S. F. This device for securing bales of cotton, wool, hay or other material which is to be held together in a bundle, consists of a strap of iron which is folded back upon itself at one end and holds a stout link in the bight. The strap being passed around the bale at the desired point, the other end is passed through the link, and after being drawn as tight as possible, is bent back upon itself, forming a bight over the link, and is secured by slipping a movable band over this bight.

GANG PLOW.—J. W. Sursa, San Leandro, Cal. The object of this invention is to provide an improvement in gang-plows, in which, by a peculiar arrangement of the axles of the bearing wheels and their connecting link, the plow frame is maintained in a horizontal position at all times,—when one wheel runs in the furrow and the other on the land, or with both wheels on a level,—and this by the use of the single lever which raises and depresses the plows, without altering a bolt or other part of the device. The simplicity of the device, together with its great efficiency, will recommend it highly to the attention of farmers.

HOSE-SPRINKLER.—W. Anderson, S. F. This very neat, simple and effective device is illustrated and described on another page.

Hose-Sprinkler.

The accompanying illustration shows an exceedingly neat and useful apparatus, which is used as a sprinkler for vegetation and wherever a spray is beneficial or useful. The device is the invention of an engineer of this city and is manifestly a great improvement on the sprinklers which are commonly used. The drawing shows the sprinkler in operation, and also the essential part of the device which is represented as lying on the walk in the foreground.

The apparatus consists of three or more hollow curved arms, attached to a central cylinder which revolves upon the upper end of a vertical pipe to which the hose is attached. Holes are made at intervals through the vertical pipe in the track of the openings in the curved arms. These allow the water to be forced out through the arms when the holes in these arms are opposite the holes in the vertical pipe, but cut off the supply at other times.

The reaction of the water escaping from the ends of the arms, causes these to rotate, but instead of the stream being thrown in a circular track, as would be the case were



ANDERSON'S IMPROVED HOSE SPRINKLER.

the water fed into the arms continuously, the alternate cutting off and letting on the supply, effected by the means above given, causes the water to be distributed in a fine spray over the whole area from the center to the circumference. The apparatus is mounted on a neat tripod, and its effect when in operation is exceedingly pretty.

This sprinkler is economical of water, which it uses to the best effect, throwing the water in a fine spray so that it is all absorbed in the ground and does not run off. Hence, also, it does not need to be changed so often as other devices of the kind. It will water an area ten to fifteen feet in diameter with an easily obtained pressure, say, from a tank twenty to twenty-five feet high. It is an ornamental appendage to any grounds; is very durable, being entirely of brass; and is not liable to get out of order. The only possible danger is from overturning the stand, when one of the arms may be bent; but these are easily replaced.

These sprinklers may be seen in operation on the Plaza or on the grounds of Mr. Milton S. Latham, in this city. Mr. R. H. McGill, at Alameda, and Mr. Tubbs, at Brooklyn, are using them. At Oakland, Dr. R. E. Cole, Messrs. G. W. Armms, J. De Fremery, R. Gibbons, N. W. Spaulding, and others employ them. They give the best satisfaction wherever used and are rapidly increasing in favor.

A patent has been granted for the device, through the SCIENTIFIC PRESS Patent Agency, to Mr. William Anderson, of this city. The sprinklers are manufactured and sold by W. T. Garratt & Co., corner of Mission and Fremont streets, S. F., to whom apply for further information.

The Ferret and its Usefulness.

EDITORS PRESS:—I beg to offer you a few lines with regard to the ferret, which is a most useful little animal, both for town and country. It is the natural foe of the rat and rabbit tribe, and as such must be a friend to every farmer, besides which it offers every one an hour's amusement whenever they want it, or rather, I ought to say, an hour's exercise and excitement. Squirrels and gophers are poisoned and caught by means of traps, but these are slow, expensive and dangerous methods; the money expended in a dozen traps would purchase a ferret, and would catch five times as many animals in a less space of time. Poison is dangerous to other animals, as well as expensive.

A ferret put into a gopher or squirrel hole would master its inmate in a minute or two. For ferocious courage they are not even excelled by the thoroughbred bull-dog, which, with their great activity, gives them an advantage over much larger animals than themselves. Put a ferret into a corn stack and the rats leave *sans ceremony*,—aye, quicker than illicit distillers with an exciseman after them. You have

ject to a disease of the feet, if bred in, or not kept clean. They have a very strong smell, and consequently require to be kept in an outhouse or stable, and the sand or straw in their cage should be changed once a day. They are all harmless, unless teased at feeding time or hurt, when they will bite their master as soon as look at him; but then, though painful, there is no attendant danger thereupon. The largest are about 20 inches in length from tip of nose to end of tail; but they are not above 2 to 2½ inches in height, their legs being very small; wherever a good-sized rat or gopher can go, they can. A small bit of meat is all they require each day. In conclusion let me say that this is indeed a valuable animal to every farmer and country resident, and I trust it will not be long ere they will be as common as they now are scarce.

E. W.

Agricultural Operations in Montana.

EDITORS PRESS:—We have not got fairly about our spring's work here yet, though it is well under way in some of our valleys. As for that matter, however, we might have been doing "spring's work" all winter, for the weather has been mild and delightful, and our roads dry and dusty. Indeed, strange as it may seem, the lack of snow is our great drawback here in the Rocky Mountains. We have not had two inches of snow on the ground at any time in our valleys and foothills this winter, though it is said that there is enough in the mountains to make a more prosperous mining season than we have had for some years, and our farmers are preparing for an increased demand for agricultural produce, that a successful mining season will develop, by cultivating an increased area of land. In fact our people have been steadily paying more and more attention to agricultural pursuits, as their preconceived opinions in regard to climatic difficulties, etc., have vanished before demonstrated facts, which prove that, for bounteous yielding of the staple agricultural products, our valleys are second to no land on the continent.

We have raised as high as 87 bushels of wheat to the acre, and other grains in proportion, and I will not here go into figures in regard to potatoes, onions, cabbage, etc., for fear that I might shake your faith in the old proverb; but they yield enormously. But while Montana is great in an agricultural point of view, as a grazing and stock-raising country she is pre-eminent. Our cattle fatten on our foot-hills and in the mountains the year round, never having to be fed. Manage to live, you suppose? They are rolling fat all the time. Our "bunch grass" for fattening stock, exceeds anything that ever grew, and its great nutritious quality is maintained through the winter, as we have no rains after it ripens to bleach it out.

Still, notwithstanding our unrivaled advantages for stock raising, I would suggest to our herdsmen and farmers whether they are not over doing the business at present. Our people, seeing a money making business, are apt to go into it "all over," and from that very reason, by over doing it, are pretty sure to come out "all under."

Fair dairy cows are worth \$75 here now, and have been for the past year, while scrub cows—inferior, and that have never been milked—are worth \$50 and upwards. Now this is a higher price, taking into consideration the quality of the stock, than is obtained in the most thickly settled States of our Union to-day; and it is a question for our people to consider, whether such a state of things can be sound and permanent. While stock raising must be a highly remunerative occupation here, when carried on under proper conditions; still it seems that the present high prices cannot long rule, especially after we have railroad communication with the East, which it now seems probable we soon shall have; and when the crash in the present inflated prices comes, as come it surely must, those who have invested largely at present figures, will find they have made an unfortunate speculation; while those who commenced when prices were moderate, and depended on the increase of their stock, will find that they have made money at whatever figures prices may go down to.

MILTON.

LAKE WASHINGTON COAL MINE.—The *Alaska Times* learns that a Mr. Dinsmore has arrived at Seattle to close the bargain for the sale of the Lake Washington Coal Mine, which was sold some weeks ago to a company of capitalists in San Francisco, for the sum of \$51,000.

The female has only one or at most two litters of young during the year, from two to five at a birth. They are sub-

Grape Growing, etc., in the Mountains.

EDITORS PRESS:—Grape grafting has become general in El Dorado county. The "V" knife spoken of some time ago in a communication to the Press, by Mr. Briggs of Alameda county, is not in favor here; although the inventor is a resident of this place. The manner of grafting the vine is to dig the earth from around the roots to the depth of about four inches, saw off the vine, then split or saw the stump to the depth of about one inch, and with a sharp, thin-bladed knife, smooth each side next to the bark, and fit the scion which should have about three buds; after which the earth should be closely packed around the stump and graft, leaving one bud just at the top of the ground. I am told that from ninety-five to ninety-seven per cent. of vines treated in this manner grow and in most cases bear a small crop the same year.

Mr. W. B. Othick, of Coloma, informed me that he has taken 15 lbs. of flame colored tokay, from a graft of that kind, set to a California Mission grape root or vine; but from three to five pounds is a fair estimate for the vine to produce the first year.

Are Vineyards Valuable in the Foot-Hills?

In an action of B. N. Bugbey, of the Natoma Vineyard, in this county, against the Natoma Canal Co., for damages in going through Mr. B.'s land, that gentleman showed by several witnesses that his vineyard was worth more than \$250,000; that 85,000 to 90,000 vines produced from 600 to 800 tons of grapes worth at least \$50 per ton, or more than \$30,000; and after the Commissioners had taken testimony for more than twenty days, and had also visited the premises, they rendered an award in favor of Bugbey and others, of over \$19,000 or nearly \$2,000 per acre for the land used by the Canal Co.

C. D. Brook, of Diamond Springs, whose vineyard and peach orchard I have spoken of in a former communication, in a contest before the Land Office at Sacramento, in proving title, testified that his place was worth more than \$12,000 and a witness for Brook, an old resident of the county, testified that in his opinion the place was worth \$19,000. B. N. Bugbey, said in his examination that he could afford to pay \$25 per ton for grapes delivered at Shingle Springs and considered them worth twice that amount when delivered at his place in Folsom.

It is no wonder, that in view of such facts as these more vines are being planted out this year than at any other time before.

Fruits of all kinds paid the producers better last year than over before; hence the effort at this time to increase the number of vines and fruit trees.

For the year ending the first of May next, there will have been manufactured from 10,000 to 12,000; gallons of brandy, in this county, which at this time finds a ready market at from \$1.50 to \$4.00 per gallon. This wide margin in price is caused by the amount manufactured and its reputation in the market. B. N. Bugbey's make, distilled by the Johnson process and put up in nice eighth pipes—22½ gallons, of uniform strength and color, readily commands the highest figure. Many manufacturers pay no regard to the size or condition of packages, allowing them to range from 10 to 200 gallons capacity each, and the strength varying from 8° below to 30° above proof, some with and others without coloring; and under a combination, it is said, of liquor dealers in San Francisco, the price has run little if any above \$1.25 at the manufactory.

But the combination game of the dealers is now played out; for I know that orders have been received here from the East to purchase all that can be procured in the county—the price ranging from \$1.50 to \$2.00 in coin, per gallon.

J. W. Foster & Son., of this place, ship their wine to Chicago, where it nets them about \$4 currency. That manufactured by B. N. Bugbey, of the Natoma Vineyard, Foster & Son., of Placerville, R. Chalmers and W. D. Othick, of Colman, and C. G. Carpenter, of Diamond Springs, is sought after by Eastern purchasers.

In a former communication to the PRESS I spoke of J. W. B. Dickson's shipment of two car loads of brandy and wine to his brother at Meadville, Pa. Dickson has now filled another order from his brother

for 2,000 gallons of brandy at \$1.50 per gallon, he furnishing the packages. This, he tells me he is going to ship by Panama, believing it will go quicker by that route than by rail, and at much less freight. By contract the last shipment was to have been delivered in 17 days; but was over 40 days in transit.

Fruit trees are late this spring in putting forth their blossoms, but appearances indicate a full crop.

Wheat in the Foot-Hills.

T. J. Patnt, a farmer residing near Gold Hill, last year raised on five acres of ground, 166 bushels of fine seed wheat, said by judges to be the finest ever raised in the county. Patnt summer fallows, and this year he has one field of 17 and another of 23 acres of wheat sown on land prepared in that manner, and from present appearance he will harvest 40 bushels per acre. All who have adopted this mode—summer fallowing—unite in saying that a good crop of wheat or barley can be grown with certainty every alternate year in our foot-hill counties.

The "Early Rose" Potato

Has been grown in this vicinity with success. From 27 lbs. planted by Mr. McKay in May last, in nine weeks he gathered 490 pounds.

The Mines.

Notwithstanding the small amount of rain the past winter, mines have been more successful about here than for a long time previous. The Hook and Ladder company has not cleaned up in six months; but have paid thousands for water in that time. Blacklock & Co. are doing remarkably well, so are Hancock & Co., each using some 300 inches of water when at work. I know of one claim that has paid over \$200, for every ten hours they have used water, and their water bill amounted to thousands in the last year at \$20 per day. Some of the porphyry claims, I wrote you about when they were first discovered, one year ago, have paid enormously to the owners—while some have been a total failure.

There is quite a flattering prospect of a new canal being constructed the coming summer, which will insure a large and lasting supply of water. If my hopes are realized El Dorado will take an advanced position that will be hard to check, and will make her one of the wealthiest mining counties in the State.

Through the Press you invite your correspondents to send their photographs. To that invitation I intend to respond, it being about the second time that such a request has been made of me; the first having been made by a young lady of the "Hub City," some twenty-five years ago; but I palmed off the original on her, and although we have resided in California near twenty years, she has not as yet applied to the courts for redress. E. N. S. Placerville, April 3, 1871.

Wood Preserving.

There was laid on our desk, last week, a thin piece of wood, on which was pasted the following information:—

This piece of Stow Foundation Pavement was preserved by the Pacific Wood Preserving Company, and laid in New Montgomery street, in the city of San Francisco, during July, 1869. It was taken up March, 1871, and was cut from one of a hundred blocks laid in a body, to show the durability of the Stow pavement preserved by the Robins' process. All the blocks of preserved wood were found to be sound. The blocks are worn not to exceed one-eighth of an inch by the twenty months' service, which would give a durability of not less than twenty years, without repairs.

Works for preserving wood are on Berry street, near Fourth, San Francisco.

The wood is certainly in an excellent state of preservation and but slightly worn on the upper surface. The Robins' process, alluded to above, consists in placing the wood in air-tight chambers, connected by a goose-neck with a large still containing the oil of coal-tar or crude petroleum, as may be desired. The coal-tar or petroleum vapors, generated in the still, pass into the air-chamber, drive the air out of the wood, it is claimed, coagulate the albumen of the sap and fill the pores of the wood with creosote or carbolic acid. The wood is said to be thoroughly saturated with the preservative elements and protected against moisture.

Good Health.

Water in the Stomach.

The first effort of nature when water has been received into the stomach, is to remove or take up from it all the elements of nutrition which it may contain. If it contains sugar or meat or anything else which may go to feed the system, those elements, if the stomach is in a healthy condition, are first abstracted and digested, and whatever of inorganic matters, it may contain, not needed in the system, are cast off by the excretories, or at least the effort is made to so dispose of them by those organs.

Sometimes minerals or other poisonous substances are taken into the stomach in such a form that the assimilative organs take bold of them and distribute them throughout the system, before the excretories can act. Poison is thus diffused in the system, more or less rapid in its action, according to its nature and the quantity present.

We often drink infinitesimal quantities of poison—generally disorganized vegetable or animal matter—in the water which we imbibe. The sickness in low swampy neighborhoods is generally due more to the water than the atmosphere. It was the deleterious substances in the waters of the Chickahominy swamps, drank by the soldiers, which decimated our army there—not the malaria of the atmosphere.

We have already alluded in previous issues, to the unhealthy nature of partially decayed food. Nothing but organized matter seems to aid in building up the system. Meat, flour, corn, barley, etc., when taken into the stomach in their natural condition, undecomposed by either cooking or any other exposure, are immediately digested; but when decomposition commences before they enter the human stomach, that decomposition is only accelerated there, and they are converted into poisons.

Sugar is produced from the cane or beet without decomposition, and is therefore a healthy nutriment. Alcohol is the result of the decomposition of sugar from molasses, corn barley, etc., and, is therefore poison. Medicines are generally poisons, taken into the system to accomplish certain specific objects, apart from building it up; alcohol is thus employed as a stimulus—its origin from decomposition precludes the possibility of its utility as nutriment. If taken in excess, like all other stimulants—which are always poisons—it is followed by a more than corresponding depression of power. Alcohol is a goad, a whip—good for proper use, but dangerous in proportion to its excessive employment. People cannot be ever careful in selecting good water, nourishing food, or too cautious in avoiding stimulants.

In-Growing Toe Nails.

We described a mode of treating this painful trouble, a few weeks since, by filing the nail down, on the principle that one cause of the disease was an unnatural thickening of the nail. We now append the following upon the same subject from the *Herald of Health*:—

The most painful of the diseases of the nails is caused by the improper manner of cutting the nail (generally of the great toe), and then wearing a narrow, badly-made shoe. The nail beginning to grow too long, and rather wide at the corner, is often trimmed around the corner, which gives temporary relief. But it then begins to grow wider in the side where it was cut off, and as the shoe presses the flesh against the corner, the nail cuts more into the raw flesh, which becomes excessively tender and irritable. If this state continues long, the toe becomes more and more painful and ulcerated, and fungus (proud flesh), shoots up from the sorest point. Walking increases the suffering, till positive rest becomes indispensable.

Treatment.—We omit all modes of cut-

ting out the nail by the root, and all other cutting and torturing operations. Begin the effort at cure by simple application to the tender part of a small quantity of perchloride of iron. It is found in drug stores in a fluid form, though sometimes in powder. There is immediately a moderate sensation of pain, constriction, or burning. In a few minutes the tender surface is felt to be dried up, tanned, or mummified, and it ceases to be painful. The patient, who before could not put his foot on the floor, now finds that he can walk upon it without pain. By permitting the hardened, wood-like flesh to remain for two or three weeks, it can easily be removed by soaking the foot in warm water. A new and healthy structure is found, firm and solid, below. If thereafter the nails be no more cut around the corners or sides, but always curved in across the front end, they will in future grow only straight forward; and by wearing a shoe of reasonably good size and shape, all further trouble will be avoided.—*Bostwick's Medical and Surgical Journal.*

An Important Surgical Success.

On Thursday last, it was our pleasure to see, "bottled up," in the office of Dr. E. J. Fraser, at No. 108 Stockton street, an immense cancer, which he had a few days previously removed from the breast of a lady, from Alameda county.

We were so much interested in the ease, that we visited the lady in person, (as she is still in the city under treatment) and from her received the following history:—

She is now 52 years old. About a year ago she discovered a small lump in the left breast. As it grew rapidly she employed the best medical skill she could find, to remove it if possible; but it continued to grow till it involved the entire breast, making a dark red tumor, as large as a child's head. It also extended across the breast-bone, and was rapidly progressing towards the other breast. The left arm was swollen to twice its ordinary size, was very painful and so nearly useless, that she could only with great difficulty, dress herself without assistance. The glands of her neck were swollen and very sore and painful, and there was a severe burning pain between the shoulders and under the shoulder blades. A large crack, half an inch deep and three inches long, extended across the breast, which discharged the peculiar cancer juice quite freely. It was an open cancer.

She had applied to several surgeons to have it removed, but no one could be found who dared to undertake so formidable an operation.

The whole mass was removed by the aforesaid surgeon in 17 days, by the use of a paste, of his own fabrication, without the loss of a drop of blood or a night's rest.

It is now sixteen days since the tumor was removed. The sore is fully two-thirds healed and looks healthy. The pains and swellings are all gone, her appetite is good and general health very much improved. On the whole it looks to us as though the cure would be perfect.

We are informed that all the different varieties of cancer, as well as lupus, are treated by this method with a success equalled by no other.

BONE FELON.—Of all painful things can there be any so excruciatingly painful as bone felon? We know of none that flesh is heir to. As this malady is quite frequent and the subject of much earnest consideration, we give the latest recipe for its cure, which is given by that high authority the *London Lancet*:

"As soon as the disease is felt put directly over the spot a fly blister, about the size of your thumb nail, and let it remain for six hours, at the expiration of which time, directly under the surface of the blister, may be seen the felon which can instantly be taken out with the point of a needle or a lancet."

GOOD HEALTH is essential to a well-directed mind.

Scientific Press.

W. B. EVER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG
W. B. EWER JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

Subscriptions payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, April 15, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Apr. 12, 1871. Legal Tenders
buying @90½; selling @91. Gold in New York to-day
110½.

Table of Contents.

Improvement in Railroad Construction, Ill.; State Geological Surveys; Irrigation Ditches	225
MECHANICAL PROGRESS.—Purity of Melted Metals; Steam Engineering; High Speed Com- pound Engine; Feeding Machine for Printing Presses; Bessemer Steel Cast Gun Barrels; Locomotive Feed-Water Heater; Belts; Sheet Tanite.	226
SCIENTIFIC PROGRESS.—Parthenogenesis; Cal. Geological Survey; Fungoid Origin of Chol- era; Electric Discharges through Gases.	226
San Diego mines; Notes on Amador County; Crystallized Carburets.	227
MINING SUMMARY; Shareholder's Directory; Market Rates.	228, 229
List of Patents; Notices of Recent Patents; Hose Sprinkler, Ill.; The Ferret and its Use- fulness; Agriculture in Montana.	230
Grape Growing in the Mountains; Water in the Stomach; In-growing Toe-Nails; Surgical Success.	231
Notices to Correspondents: Narrow Gauge Rail- roads; Mining Dividends and Assessments; Prospects of Comstock Lode; Mines and Mills.	232
Iron and Wood Bench Planes, Ill.; Inventor of the Sewing Machine, Ill.; New Books.	233
Artificial Appetites; Milk and its Adulteration; Sugar, Starch, etc.; Domestic Receipts; Me- chanical Hints.	234

Notices to Correspondents.

COMMUNICATIONS RECEIVED.—From I.
Richards on Transcontinental Traffic;
from "Crowquill," on the Inyo County
Mines; from "G. M. W.," on Improve-
ments in Locomotives; from "Index," on
Flint Creek District, Montana.

GONE EAST.—Mr. A. T. Dewey, the
senior member of our firm, has gone East
for a short time, to visit the "old folks."
Any personal communications to him dur-
ing the next two or three weeks, should be
directed to Westfield, Massachusetts.

NAHL'S ART GALLERY.—The "opening
day" of this gallery brought hosts of lovers
of art to the new photographic rooms of
the Nahl brothers, on Montgomery street,
opposite the Lick House. A visit to the
place, last Wednesday, by invitation of the
artists, whom the coast honors, formed a
delightful episode of the week. The
paintings, drawings and photographs,
nicely and artistically arranged in the well
appointed establishment, were convincing
evidences of the talent and taste of the pro-
prietors, to whom we wish the reward
which they merit.

THE HOWE SEWING MACHINE.—We give in
another place an interesting history of the
sewing machine and of its inventor. In the
article, allusion is made to the "Howe ma-
chine," one of the very best, as there indi-
cated. In the new building adjoining the
"White House," on Kearny street, near Post,
—at No. 113, one of the finest commercial
buildings in this city—is the office of the
machine and also of Buttericks pattern
agencies. The elegant fittings, extensive
display of goods and excellent machines
render it one of the most attractive sales-
rooms on the coast.

THE late rains are everywhere reported
as having given new confidence in a con-
siderable yield; but another rain will soon
be needed as much as the last one to secure
crops from nearly a total failure through-
out a large portion of the State.

Narrow Gauge Railways.

Not many years ago the battle of the
gauges was waged fiercely, but the narrow
gauge came out victorious. Then the nar-
row gauge was 4 feet 8½ inches. Now
we are having a contest between gauges as
to whether the still narrower gauge is ad-
missible.

The success of the narrow gauge is again
indisputable for mountainous lines and in
sparsely settled countries. In such cases
the construction of the broader gauge, un-
less on trunk lines with large traffic, will
result in disaster.

We are certain to have several narrow
gauge lines on our Pacific coast before
long, Nevada promising to be the first to
have one or more lines completed. Every-
thing, therefore, bearing on the subject is
of interest, and we have from time to
time published articles relating to narrow
gauge roads.

We learn from the *American Railway
Times* that the Railway Committee of the
State of Massachusetts have had the gauge
question under consideration, and have
made a report in which the general subject
is discussed with ability and fairness by
the chairman, who is a civil engineer of
considerable eminence. The report ad-
vises the authorization of the construction
of roads with three-foot gauge. It gives
estimates of the cost of building and
equipping roads with 2 foot 9 inch and 4
foot 8½ inch gauge in this country, and we
copy the portion of the report relating to
this, as one of the best which has been
made with reference to our wants.

Let us estimate the cost of building and
equipping one mile of a cheap railway, 25
miles long, of 2 foot 9 inch gauge, where
the average depth of cuttings and embank-
ments may be reckoned at four feet. The
sectional dimensions, and the bridging,
masonry and sidings being deduced and
averaged from a surveyed line, and the
equipment conformed as nearly as practi-
cable to the recommendations of the India
committee and of practical builders in this
country, the prices being actually guaran-
teed by the latter, viz:

Rails.....	\$4,243 00
Sleepers.....	352 00
Spikes.....	175 00
Joint fastenings.....	400 00
Laying track.....	250 00
Embankment, 6,062 cubic yards.....	1,513 00
Cuttings, 5,629 cubic yards.....	1,480 00
Rock cutting, 1,611 cubic yards.....	1,611 00
Ballast.....	1,000 00
Sidings.....	200 00
Masonry and bridges.....	1,140 00
Rolling stock for whole road, say:	
Engines, 3.....	\$18,000 00
Passenger cars, 5.....	5,500 00
Mail and baggage cars, 2.....	1,200 00
Merchandise cars, 35.....	6,125 00
Merchandise cars, 25.....	4,000 00

\$34,825 00÷25=1,393 00

\$13,757 00

And the estimate of cost of same road
with similar grades and alignment, with
a gauge of four feet eight and one-half in-
ches, with the usual provision for rolling
stock, viz:

Rails.....	\$6,600 00
Sleepers.....	924 00
Spikes.....	264 00
Joint fastenings.....	700 00
Laying track.....	325 00
Embankment, 8,604 cubic yards.....	2,151 00
Cutting, 11,703 cubic yards.....	1,927 00
Rock cutting, 2,085 cubic yards.....	2,085 00
Ballast.....	2,000 00
Sidings.....	334 00
Masonry and bridges.....	2,000 00

Rolling stock for whole road, say:	
Engines, 3.....	\$48,000 00
Passenger cars, 5.....	20,000 00
Mail and baggage cars, 2.....	2,600 00
Merchandise cars, 30.....	30,000 00
Merchandise cars, 20.....	16,000 00

\$116,600 00÷25=4,664 00

\$23,974 00

The difference is that of nearly one
to two, and shows that where cheap roads are
practicable, the use of the narrow gauge
may reduce the cost about one-half, with-
out reducing necessary efficiency.

STRAWBERRIES are beginning to come in
quite freely. The small fruit crop prom-
ises to be very abundant, the present sea-
son in this vicinity, if not generally,
throughout the State.

Mining Dividends and Assessments.

The remark is only too common that
mining absorbs two dollars for every dol-
lar produced. This remark is true only in
the sense that the two dollars absorbed
have been for the most part thrown away.
The manner in which persons have invest-
ed in the wildest schemes and the biggest
stock gambling operations, would go far in
a jury trial to prove the insanity of the in-
vestors. But such things have nothing to
do with legitimate mining. A like manner
of conducting any business operations
would result as disastrously,—would ruin
the Rothschilds in a year. And, again, on
this coast, a mine is not considered a suc-
cess unless it returns the enormous divid-
end of five per cent. a month,—at least,
our capitalists are unwilling to invest at
lower rates. Now what other business
will do this to the extent that mining has
done?

We have already asserted, and still as-
sert, that our mines, properly and legiti-
mately worked, will give as good returns
as any other operation,—will do far better
than most.

Considerable matter of interest is shown
by a statistical table published last week
by Richard Wheeler, editor of the *Stock
Report*. This contains a statement of the
assessments levied and dividends disbursed
by fifty-three of the leading mining com-
panies whose stocks are chiefly dealt in by
the S. F. Stock Board. We give the table
(in part) below, as valuable for reference.

CALIFORNIA COMPANIES.			
No. Shares.	Assessments.	Dividends.	
Amador.....	3,700	\$850,800	
Eureka.....	20,000	1,614,000	
Maxwell.....	4,000	\$53,880	
Oreana.....	15,000	64,000	
St. Patrick.....	5,000	6,000	
Union.....	5,000	5,000	
Totals.....	65,700	\$117,880	\$2,464,800

IDAHO COMPANIES.			
No. Shares.	Assessments.	Dividends.	
Golden Chariot.....	10,000	350,000	
Ida Elmore.....	10,000	75,000	60,000
Mahogany.....	6,000	12,000	
Rising Star.....	12,000	384,000	
Totals.....	38,000	\$471,000	\$410,000

NEVADA COMPANIES.			
No. Shares.	Assessments.	Dividends.	
Alpha Cons.....	6,000	\$132,000	
American.....	11,600	52,200	
Belcher.....	10,400	192,400	
Bullion.....	5,000	1,077,500	
Chollar-Potosi.....	28,000	402,000	\$2,492,000
Confidence.....	1,600	218,880	78,000
Con. Chloride.....	60,000	280,000	
Con. Silver Wedge.....	20,000		
Con. Virginia.....	11,600	127,600	
Crown Point.....	12,000	523,370	858,000
Dancy.....	8,000	435,000	50,000
Empire Mill.....	1,200	90,000	613,600
Eureka Cons.....	50,000		87,500
Eschschuer.....	8,000	128,000	
Flower.....	12,000	12,000	
Gold Hill Quartz.....	500	35,000	41,250
Gould & Curry.....	4,800	561,600	3,826,800
Hale & Norcross.....	8,000	610,000	1,698,000
Hidden Treas. Con.....	12,000	9,000	
Imperial.....	4,000	450,000	1,067,600
Jackson.....	50,000		
Julia.....	10,000	106,200	
Justice.....		70,000	1,252,000
Kentuck.....	2,000		
Mammoth.....	36,000	55,800	
Meadow Valley.....	60,000	210,000	270,000
Metropolitan.....	10,000	40,000	10,000
Mineral Hill.....	50,000		
Nevada Butte.....	40,000	40,000	
Noonday.....	20,000	32,000	
Occidental.....	10,000	166,000	20,000
Ophir.....	16,800	1,064,000	1,394,400
O. H. Treasure.....	21,333	96,339	\$3,449
Overman.....	12,800	632,688	
Raymond & Ely.....	30,000		30,000
Savage.....	16,000	465,000	4,288,000
Seg. Belcher.....	5,400	180,800	
Sierra Nevada.....	20,000	450,000	102,500
Silver Vault.....	30,000	6,000	
Silver Star.....	20,000	102,000	
Succor M. & M.....	22,800		
Virginia.....	21,333	36,000	
Yellow Jacket.....	24,000	1,618,000	1,944,000

Total Nevada.....	794,126	\$10,739,537	\$19,963,749
Total Idaho.....	38,000	471,000	410,000
Total California.....	55,700	117,880	2,464,800

Totals.....887,826 \$11,328,517 \$22,837,849

This table of itself does not give an ex-
plicit idea of the profits of mining on this
coast. It treats only of those mining en-
terprises which are largely represented in
the Stock Board, and no account is taken
of the disbursements from the several
mines before the incorporation of the com-
panies, which disbursements were in cer-
tain instances very large. But the figures
go to show that the dividends far exceed—
are twice as much in amount as—the as-
sessments, that many of the operations
have returned a splendid interest on the
money invested, and that no other specu-
lation has been more or even as profitable.

Now add to this, the fact of early reck-
lessness and extravagance, the fact that the
management of a mine has often gutted the
property, has taken out every cent in divid-
ends to bull the stock, sell out at high
figures and make a fortune in a day regard-
less of the future of the property, consider
all the fraud and ignorance—and it cannot
but be astonishing that such results as
those here given have been possible. No
other business than mining could have
done so well.

Mines and Mills.

Under this heading the *Eureka Sentinel*,
of March 25th, gives a number of examples
to prove its statement that mills should be
erected at Eureka. It commences its article
as follows. We should like to ask, how-
ever, whether it has seen any quartz ledges
under the carbonate deposits.

The explorations in this district have
proven that there is much ore that is very
profitable to reduce by mill process, and at
the greatest depth many of the mines that
produced ores with a large per cent. of base
are becoming more rich in silver, and the
carbonates are giving way to regular
ledges of quartz ores. The confidence that
miners have heretofore had in the district
is increased, as the certainty of continua-
tion in ledges is considered greater than
when mines produce carbonates. Several
of the mines that were at the surface out-
croppings of smelting ores, are now good
milling ores that will pay a large profit to
the miners when milled. In the first dis-
coveries, about two-thirds of the mines
were of a kind of ore that would smelt
most successfully, and many persons were
of opinion that the establishment of mills
would be hazardous on account of the
quality of the ores. Since that time, ex-
perts who have examined the ores have de-
clared that a great quantity of ore will
yield, by mill process and proper roasting,
a per cent. unequalled by any district in
Nevada. In the mineral belt of this dis-
trict there seem to be some places where
the smelting ores are very rare, and many
mines are being worked that are producing
silver and gold quartz with very little base.

Prospect of the Comstock Lode.

It is within the recognition of every citi-
zen of Storey County that the future of the
Comstock never looked more promising
than to-day. Recent developments seem to
have established the correctness of the the-
ory that the great Comstock vein is limit-
less in depth, and the cheering effect of the
discovery is beginning to be observed in
every avenue of trade and industry. While
some have contended that the bottom of the
deposit would in time be reached, others
have adhered to the opinion that, although
the vein might be without limit in depth—
being a true fissure vein—it would become
poorer in the precious metals as it descend-
ed, and finally become barren, or so nearly
so as to render the working of it profitless.
Neither of these opinions seems to be cor-
rect. Development has demonstrated not
only that the deposit is inexhaustible, but
that it is not an invariable rule that it be-
comes poorer in its lower depths. In some
of the mines, it is true, the ores have de-
creased in value with the depth, but this
has not been the case in every instance,
and the theory of gradual impoverishment
cannot be accepted in a general application
to the entire line of the Comstock. The
lowest depths reached are showing bodies
of ores as vast and valuable as were
found nearer the surface, and im-
proved machinery, which ingenu-
ity will apply as necessity requires, will
enable ores to be raised and profitably re-
duced at a depth ten times greater than has
yet been attained. Nor this only. The
Comstock lode has been traced a distance
of over two miles, yet not one quarter of
this length has been worked at all. It
abounds in great stretches that appear to
be barren. But are they really so? This
is a question which will in time be an-
swered. We do not believe them to be
barren. In formation the Comstock is ex-
ceedingly irregular. It has a general di-
rection and connection, but in some spots
it is rich near the surface, while a few
paces to the north or south it is barren at
the same depth. Like the billows of the
ocean, the rich deposits of the vein seem
to rise and fall, but the opinion is rational
that, somewhere along the vein, in every foot
of it, either at the surface or at the depths
of hundreds or thousands of feet, valuable
ores may be found. Extending from the
Gould and Curry to the Ophir, one of these
barren stretches is to be found, from which
but little ore of value has ever been taken.
A systematic search is now being made
along it, and we are not permitted to doubt
that the labor applied and money expended
will find abundant reward in the end. It
is this belief, strengthened by recent de-
velopments elsewhere along the line, that
warrants us in predicting a prosperous fu-
ture for Storey county.—*Virginia Enter-
prise*.

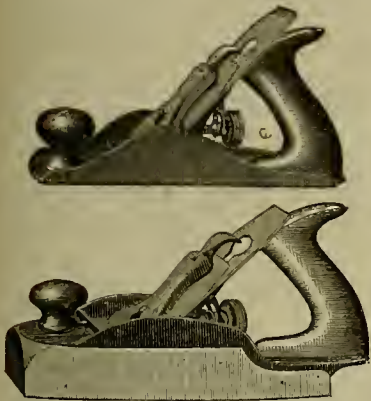
NUMBERS of Swiss emigrants are coloniz-
ing in Tennessee, and are going into the
manufacture of cheese, with all the neces-
sary implements for which they are fully
provided.

Iron and Wood Bench Planes.

We here give representations of improved styles of planes for carpenters' use, manufactured by the Stanley 'Rule and Level Company, of New Britain, Conn., who now offer them to the Pacific coast market.

In explanation of the ents, it may be said that the plane-iron is secured in position by the iron cap or lever, which has a cam with a thumb-piece at its upper end. A screw, passing down into the iron bed-pieces, serves as a fulcrum upon which the lever acts in clamping the plane-iron. The lever may be placed or removed at pleasure without the use of any tool, being properly slotted for the purpose; and the pressure required for the best working of the plane can be adjusted at any time by driving or slackening the central screw upon which the lever operates.

The thumb-screw, under the bed-piece, operates a simple device by means of which the plane-iron may be easily set forward or withdrawn, while it is clamped down to the bed-piece; and without removing the hands from the plane, or the plane from the work, any desired thickness of shaving



may be obtained with perfect accuracy. The iron bed-piece is attached to the stock of the plane by two screws; and can be moved forward or backward, sufficiently to open or close the mouth of the plane, as the owner may desire.

The plane-iron and the cap-iron are fastened together in the usual manner, by a screw passing through the center of each. The curve in the cap-iron being brought directly under the lower end of the clamping lever, while the plane is in use, the greatest pressure is exerted at the extreme cutting edge, and at a point about an inch back from the same, where the plane-iron is most likely to buckle, or rise from its bed. The remainder of the pressure is distributed from this point to the heel of the iron, in a manner which secures its perfect solidity upon the bed, and avoids any chattering.

These planes have stood the severest tests applied to them by practical workmen, and are becoming great favorites. A mechanic at Sacramento tells us that he has used a set for six months, and now wouldn't use any others. We consider the extended use of iron in these instruments as one of those steps in the march of improvements not likely to be retraced. The plane is an instrument almost as general in its use, as the hammer or saw, and which should occupy an important place among the tools of every farmer. Good tools are always the cheapest in the end. Hence recommend the above to the attention of both farmers and mechanics, and all who may desire such an instrument. Any further information, with regard to prices, etc., may be obtained by addressing the manufacturers, as above.

A DEADLY POISON.—It is acknowledged by some of the medical journals of the day that there is a poisonous compound so deadly and active, that a letter containing some of it in an imperceptible quantity, will cause the reader to fall dead almost instantly with all the symptoms of asphyxia. One or two well authenticated instances are recorded.

The Inventor of the Sewing Machine.

It is said that we are producing the astounding number of one thousand sewing machines every working day at an average cost to the purchaser of sixty dollars each. Sixty thousand dollars daily paid for this substitute seems almost incredible. Yet we are told that there are single establishments which employ over five hundred machines; we know that there are millions of families in the United States, most of whom have or intend to have one; and we cannot visit any city of large size in the civilized world without stumbling across the familiar article.

To the man whose face appears on this page, is due the credit of inventing the machine which annually saves millions of dollars in labor. Prof. Renwick said on oath, in 1860, that he believed the saving of labor then amounted to nineteen millions per annum.

Elias Howe, Jr., the inventor of this wonderful machine, was born at Spencer, Massachusetts, in the year 1819. As a youth, he

months he took a course which drove off his benefactor, and Elias Howe was left almost penniless in London, with a sick wife and three children in America.

After suffering extreme want, this inventor returned to America in 1849, with \$2½ in his pocket, to see his wife die. Among his friends again, however, he was enabled to get the means for a proper subsistence, and to war against the infringers of his patent right. Nine years after making his first machine, his right was legally established, and from that time fortune commenced to smile on him, and at the time of his death, Oct. 3d, 1867, he was a wealthy man.

While it has been proved incontestibly that Howe was the first inventor of the sewing machine, it is allowed that one or two others also invented a like machine, without knowledge of Howe's work, but at a later day; and that many valuable modifications have been since made. Yet it is agreed by disinterested and competent persons that Elias Howe, in his first machine, carried the invention farther on towards its



was considered a jolly fellow, disinclined to extra exertion or steady labor, and not at all of the stuff to make a hero of. Yet he passed through a most dramatic life, underwent the toils and privations reserved for the inventor and made the more poignant by the knowledge of the great yet unrequited merits of his device, and produced one of the revolutionizing inventions of the age. It is a satisfaction to know that he finally received his reward.

In 1843, he set to work to invent a machine which should do what his wife was obliged to do daily, and in 1844 he had made a model which would actually sew. Aided by a kind friend (for he was poor) who wished to help him and was not disinclined to make a sudden fortune,—by George Fisher, a coal and wood merchant of Cambridge, Massachusetts,—he completed in May, 1845, a working machine, one which could be put into a box of a capacity of a cubic foot and a half, but which could sew at the rate of 300 stitches per minute. But this mechanical success was far from being a financial success. Although he proved the utility of the device in practice and before the public, he could not sell a single machine.

Failing to introduce it in the United States, Elias Howe, with his brother, went to London, where a certain William Thomas bought a part right for a mere song and engaged his services. For the sum of \$1,250, William Thomas secured that which enriched him. Yet after a few

complete and final utility than any other inventor has ever brought a first-rate invention at the first trial.

Among the late inventions of importance the "Mill's Treadle" must be mentioned. Many objections have been made to the use of the sewing machine by women, on the ground that physical injury results only too often. The treadle in question, which is attached to the Howe machine, according to the positive certificates of many prominent physicians of this city, entirely obviates the objections mentioned, and must therefore be awarded an important place in the history of the machine.

The sewing machines now offered to the public are really wonderful. They perform nearly all that the needle ever did. They seam, hem, tuck, bind, stitch, quilt, gather, fell, braid, embroider and make button holes. They are used in the manufacture of every garment worn by man, woman or child, from the stoutest to the most delicate. A very interesting collection of shoes, gaiters and lady's boots was sent to the Paris Exposition. There were all degrees of delicacy, from the stout Balmoral to the boot of kid, satin or velvet; and every kind of stitch had been employed in their manufacture. Some of the stitches were so small that they could not be distinctly seen without a magnifying glass, and some of them were as coarse and strong as those of men's boots. The special wonder of the display was that every stitch in every one of the beautiful shoes was executed by the machine,—by what is called the "Howe Sewing Machine."

We could speak at much greater length of this device, of its capabilities, its great

utility, the saving of labor which it effects. But we have no space for more. Among the literature on the subject may be mentioned a most interesting article contributed some years ago by James Parton to the *Atlantic Monthly*, which we have used in part in our remarks.

New Books.

SCENES OF WONDER AND CURIOSITY IN CALIFORNIA.—Illustrated with over one hundred engravings. A Tourist's Guide to the Yosemite Valley, etc. By J. M. Hutchings. New York and San Francisco. A. Roman & Co., Publishers, 1870, 8vo. pp. 232.

In this handsome little volume, Mr. Hutchings has managed to give very much of interest concerning the beauties and wonders in our State, described in a pleasant manner and handsomely illustrated. The book is well suited for a place on the parlor table, and will help to give a better idea of what there is on there on the Pacific coast to allure travelers. We could make many an extract, in order to give a clearer idea of the book, had we the space, and we open it at random for one—a short one. We hit upon an illustration of how the big tree was cut down in the Calaveras grove.

"This tree employed five men for twenty-two days in felling it—not by chopping it down, but by boring it off with pump augers. After the stem was fairly severed from the stump, the uprightness of the tree and breadth of its base sustained it in position. To accomplish the feat of throwing it over, about two and a half days of the twenty-two were spent in inserting wedges and driving them in, until at last the noble monarch of the forest was forced to tremble and then to fall, after braving 'the hattle and the breeze' for nearly 3,000 years. In our estimation, it was a sacrilegious act; although it is possible that the exhibition of the bark among the unbelievers of the Eastern part of the continent and of Europe may have convinced all the 'Thomases' living that we have great facts in California which must be believed sooner or later. This is the only palliating consideration with us for this act of desecration."

THE ARCHITECT'S AND BUILDER'S POCKET Companion and Price Book, etc. By Frank W. Vogdes, Philadelphia, Henry Carey Baird. 1871. For sale by A. Roman & Co., S. F.

This convenient little book is designed to afford to the building fraternity those facilities and advantages provided for civil and mechanical engineers by similar works. It is neatly and carefully prepared and has very much of practical utility to architects and builders. It contains a short but comprehensive epitome of decimals, duodecimals, geometry and mensuration; with tables of U. S. measures, sizes, weights, strengths, etc., of iron, wood, stone, and various other materials, quantities of materials in given sizes and dimensions of wood, brick and stone; a full and complete bill of prices for carpenter's work; and rules for computing and valuing brick and brick work, stone work, painting, plastering, etc.

A COMPLETE GUIDE FOR COACH PAINTERS. Translated from the French of M. Arlot, Coach Painter, for eleven years Foreman of Painting to M. Eherler, Coachmaker, Paris, by A. A. Faquet, Chemist and Engineer. To which is added an appendix, containing information respecting the materials and the practice of coach and car painting and varnishing in the United States and Great Britain. Philadelphia, Henry Carey Baird. London: Sampson Low, Son, & Marston. 1871. 8vo. pp. 173. Price \$1.25. For sale by A. Roman & Co., S. F.

This excellent work cannot fail to be appreciated by the class for whom it is intended, being so pregnant with useful information for every day practice. There is no attempt at literary execution, but facts are given in a clear, comprehensive and impartial manner. In addition to the matter furnished by the French writer, a large amount of valuable material is given touching the practice of the profession in our country and Great Britain, which adds very largely to its great usefulness for American builders. Mr. Baird says in his preface:—"The undersigned cannot withhold an expression of the pride and satisfaction with which he, as a friend of American Industry, welcomes the day on which he is able to print such facts as are here given in regard to the successful establishment of the manufacture of the finer qualities of varnishes in this country. The industries are the mile-stones along the grand highway which leads to true civilization and National Power and Independence."

RECEIVED, to be noticed next week: Report of the Regents of the N. Y. State University; Iron Railway Bridge designs, of Phenixville Bridge Works; Bicknell's Village Builder.

DOMESTIC ECONOMY.

Artificial Appetites.

The tone of the stomach may be destroyed by insensible degrees—that is, without the individual experiencing any pain or any considerable uneasiness. Most people think their own experience or appetite the best test in regard to the fitness of any suitable food for their own use; and yet it is a well established fact, and patent to every medical man, that oftentimes things which appear to set well on the stomach, really produce very important disturbances, if not in the stomach, at least elsewhere in the system. In fact, the “tone of the stomach” may thus be entirely changed or destroyed. Such a condition of that organ is often caused by an excessive use of spices and stimulants of various kinds. It is thus that the taste for putrid food, to which we made reference last week, is acquired.

In support of the position that many of our tastes in civilized life are artificial rather than natural, it is quite common to refer to the same thing in domestic animals, who are taken away from the teachings of nature, and compelled to acquire artificial tastes and appetites, in order to render them more useful to man. Cows, sheep and horses are thus, in some places, as a matter of necessity, economy or convenience taught to eat fish—which, in their natural state, they will not touch.

As an instance, in case of the horse: Many years ago, when hay was scarce in the upper portion of Michigan, and along the shore of Lake Superior, the settlers were compelled to feed their animals, even horses, upon fish; and it is related of this region by Capt. Maryatt, in his “Diary,” page 55: “You will see horses and cows disputing for offal; and our landlord told me that he had often witnessed a particular horse wait very quietly while they were landing fish from canoes, watch his opportunity, dart in, steal one, and run away with it in his mouth!”

GREASY FOOD.—Hamilton, in his “Men and Manners,” makes a remark, the truth of which must strike every thinking man who has witnessed the propensity for grease which is so common among Americans generally. “The national propensity for grease,” he says, “is inordinate. It enters largely into the composition of every dish, and constitutes the sole ingredient of many. The very bread is, generally, not only impregnated with some unctuous substance, but when sent up to the breakfast table, is seen to float in a menstrum of oleaginous matter.

This is floating toast, we suppose, which some people fish for with a fork, or a spoon, in an ocean of butter. Luckily he has said nothing of the ‘short bread’ and ‘puddings’ stuffed with grease; and of the Yankee ‘doughnut’ fried in grease. In Alabama they grease everything with pork fat. Even bacon swims in pork grease. The negroes actually drip with greasy perspiration.”

Milk and Its Adulteration.

The climate and season of the year have much to do with the amount of milk rendered by each animal; those contingencies also materially affect the nature and composition of the milk. In hot and dry seasons the quantity is less, but the quality is richer. Cold weather favors the production of sugar and cheese in milk, while hot weather increases the yield of butter.

An animal milked three times a day will yield a larger quantity than one milked twice, and more at two milkings than one in a day. But milk drawn but once a day is richer than that drawn thrice or twice.

From these observations it will be seen that the detection of adulterated milk is extremely difficult. The truth can be comparatively reached by ascertaining the minimum density of pure milk, and seeing whether the density of the suspected samples be above or below that. A lactometer—the instrument employed to determine the density,—costs but a trifle, and any child that can read figures can be easily taught to use it. By the use of such an instrument, a standard degree of specific gravity can be fixed, up to which all must come, and down to which anyone may adulterate, without detection.

Milk is variously adulterated—by the addition of water, chalk, starch, gum, etc.,

or by the extraction therefrom of cream. When water is added or cream extracted, the fluid has a bluish, flimsy look, which the adulterator endeavors to mask by the addition of chalk, starch, or a peculiarly prepared gum. The lactometer fails, for reasons well known to the expert, to detect, with any degree of certainty, any of these adulterations; but they can all be detected and their quantity determined by careful chemical examinations. The cost of such examinations, however, preclude their general practicability.

HOW TO DETECT WINE MADE FROM CIDER.—Evaporate slowly a small quantity of the suspected wine to dryness; then gradually expose the residue to a slightly increased temperature, and if it has been made from cider or largely adulterated therewith, a peculiar smell of baked apples will be apparent.

HOW TO DETECT CHICORY IN GROUND COFFEE.—Pure coffee when sprinkled on the surface of water, remains there for sometime, and does not sink; but if chicory is present it will almost immediately sink, and tinge the liquid a brownish yellow. Again: Chicory contains so much gummy matter that if the fingers be moistened, and a little of the suspected coffee be taken up between them, and well pressed together it can be moulded into a slightly adhering plect, while pure coffee will not adhere at all.

Sugar, Starch, Etc.

Sugar and starch have very nearly the same chemical composition, but in some of their physical properties they are very different. Sugar is soluble in water, while starch is only diffusible through it. Sugar undergoes the process of fermentation, starch does not; sugar has a sweet taste, starch is almost tasteless. Starch, however, is convertible into sugar, and then assumes all the characteristics of other sugar, being capable of fermentation and of thus being converted into alcohol.

It is converted into sugar by the juices of the mouth and stomach, and this is the first process of digestion, with starch. Sugar, therefore, is more quickly prepared to be absorbed into the blood, and better adapted as a heat-giver for the young, and in warm weather, when the digestive organs are enfeebled. This is indicated in children by the almost universal love which they manifest for food containing it, and Nature furnishes it in the milk of all animals, and in the summer in fruits and berries and green vegetables, clearly indicating the importance and the appropriate use of sugar.

Sugar assumes three different forms in common articles of diet, which are very nearly alike in chemical composition, and have also the same peculiarities. These are called cane sugar, grape sugar, and milk sugar.

They vary in composition as follows:—

	Carbon.	Hydrogen.	Oxygen.
Cane Sugar.....	12	10	16
Grape Sugar.....	12	12	12
Milk Sugar.....	11	12	12

They are all alike sweet and soluble in water; but the cane and milk sugars differ from the grape in that they do not ferment till they have first been converted into grape sugar.—*Philosophy of Living.*

Sugar is found in almost all plants at certain periods of their growth and development. It circulates largely in the sap of trees and plants, just before they unfold their buds, and in some species—as the maple—in such quantities that the sap is drawn off for the manufacture of sugar.

Vegetables also contain more or less sugar, as the beet, the melon, etc. All grasses contain sugar just before the seed is formed, but it is nearly all used up by the plant in forming the seed; hence the importance of cutting grasses in the bloom. By so doing, the sugar is retained in the stalk for the use of the cattle. If allowed to go into the seed, it would be converted into starch, which, though almost identical with sugar, as shown above, is much less nutritious. The sugar cane is nothing but a huge grass, and holds the same relation to other grasses, in the amount of sugar which it contains, as the maple does to other trees. If the cane was allowed to ripen its seed, it would contain very little or no sugar.

Domestic Receipts.

TO PREVENT MOULD.—It is a remarkable fact, not as generally known as it should be, that mouldiness is effectually prevented by any kind of perfume. Paste strongly impregnated with any of the essential oils will not become sour or mouldy. Books will not become mouldy in the presence of Russian leather.

SURE DEATH TO BED BUGS.—Take a teaspoonful of quicksilver, beat it up with the whites of two eggs, as for frosting, till the two are thoroughly and finely united, then apply with a feather to every crack or crevice in the bedstead or wall, where a bed bug can hide. Repeat it three or four times, and your work is done for two years at least.

TO MAKE A CANDLE BURN SLOWLY.—When, as in case of sickness, a dull light is wished, put finely-powdered salt on the candle, till it reaches the black part of the wick. In this way a mild, steady light may be kept through the night by a small piece of a candle.

ICING FOR CAKES.—Take of the best white sugar one pound, and pour over it just enough cold water to dissolve the lumps; then take the whites of three eggs, and beat them a little, but not to a stiff froth; add these to the sugar and water; put it in a deep bowl, place the bowl in a vessel of boiling water, and beat up the mixture. It will first become thin and clear, and afterward begin to thicken. When it becomes quite thick, remove it from the fire, and continue the beating until it becomes cold, then spread it on with a knife. It is perfectly white, glistens beautifully, and is so hard and smooth when dry, that you may write very well upon it with a pencil.

HOW TO KEEP BUTTER SWEET.—It is the easiest thing in the world. Simply put it in clean jars and cover with a strong brine. This will keep pure butter a year, fresh and sweet, as we know by experience. It is almost equally good to put in oak casks, headed tight. This is equivalent to canning fruit. The brine, in case of jars, acts as a heading, keeping the air out. Butter to be thus preserved should be made properly. The buttermilk should be thoroughly worked out till you have only pure “beads” coming out as clear as rain water. Care should be taken, however, not to work so much as to destroy the “grain,” else your butter will be tough, and “heavy” in winter and “greasy” in summer. Such butter cannot be kept in good order for any length of time by any possible expedient.

Mechanical Hints.

HOW TO STRAIGHTEN SAWS.—If the saw has a “back” take it out by placing it between two pieces of wood in your bench-screw, and knocking the back with a piece of hard wood from the end that comes up to the handle. Take the the blade, and see where the buckle is in the front; it wants hammering upon the back of the blade upon a smooth flat iron or anvil, with a smooth-faced hammer, commencing from the back in a line with the centre of buckle, in this wise: one blow outside edge, then so that the blows may fall in a triangle, then one, two, three, a little farther; and by taking particular notice of the effects of each blow you will very soon find out where to expend your labor to the greatest advantage to obtain your end. Do not hurry, but take it quietly. It is a thing that has puzzled a great many, but nothing is easier, with a few effective blows well directed. But one in the wrong place and you may put four cross buckles where there was only one; if you lose temper and hit at random, your saw will be spoiled.—*Cabinet Maker.*

THE RAILWAY CAR is the advanced and improved form of carriage. It represents in its finest forms what may be called the highest degree of perfection of the carriage. The other extreme is probably best illustrated by the old-fashioned drag which is merely a frame of wood that is drawn along bodily on the ground. An interesting paper might be written on the gradual development of carriages from the drag to the finest approved silver palace car. Upon the application of steam to traveling purposes, the ordinary stage-coach first answered the place of a vehicle. Then a train of coaches became necessary. Then as the train grew longer, several coaches were united, but they still retained their old form of construction and the same arrangements of wheels. One by one these original traces of the coach disappear, the wheels were placed on trucks, the framework of the body was changed, and now the railway car is essentially original.

LIFE THOUGHTS.

The greatest of all mistakes is to live for time, when any moment may launch us into eternity.

Success rides on every hour—grapple it and you may win; but without a grapple it will never go with you.

Never ridicule sacred things, or what others may esteem as such, however absurd they may appear to be.

Never show levity when the people are professedly engaged in worship.

Work is the weapon of honor, and he who lacks the weapon will never triumph.

Always take the part of an absent person who is censured in company, so far as truth and propriety will allow.

Borrowed garments seldom fit well. Haste often trips up its own heels. Men often blush to hear what they are not ashamed to do. What is not needed is dear at any price.

It was a saying of Socrates that every man had need of a faithful friend and a bitter enemy; the one to advise, the other to show him his faults.

A man should never put a fence of words around his ideas, because many who would otherwise give him a fair hearing, lack resolution to climb over such a rugged enclosure.

They who doubt the truth of religion because they can find no Christian who is perfect, might as well deny the existence of the sun because it is not always noonday.

He who waits to do a great deal at once, will never do anything.

Men who Live Forever.

Mr. Beecher, in a recent sermon, said: “Men who establish academies, colleges, universities, live forever, and live, too, in a way that an angel might be proud to live. They who established Harvard—who, with heavenly arithmetic, can compute what their money has done since they have gone home? Is the name of Yale not familiar to every intelligent man on the continent because he endowed that college? His name will be carried down thousands of years. Cornell’s name is rescued already. Vassar’s, Astor’s and Drew’s names would not have sounded far down, had they not a due inspiration that taught them to found seminaries for the discovery and propagation of knowledge among the masses of men. And this is the reason, I say, that men ought not to be poor if they can be rich. There is a power in wealth when it is guarded by benevolence which should not be despised. Having such a sword as that with which to slay ignorance, no man ought to refuse to draw it from its sheath. Whoever can organize wealth and endow institutions of learning, is using wealth to a good purpose. We may rise to a higher grade and to more familiar ground, since it is more frequently inculcated in the pulpit. As virtue and spirituality are higher than physical qualities, as the wealth of society lies more in the goodness of Christian families and Christian institutions than in ease, or abundance, or pleasure, so the most worthy prolongs his life to an afterday, who so lives as to give force and perpetuity to spiritual influences.”

A WORD TO BOYS.—Truth is one of the rarest virtues. Many a youth has been lost to society by allowing falsehood to tarnish his character and foolishly throwing truth away. Honesty, frankness, generosity, virtue—blessed traits! Be these yours, my boys, we shall not fear. You are watched by your elders. Men who are looking for clerks and apprentices have their eyes on you. If you are profane, vulgar, saloon going, they will not choose you. If you are upright, steady and industrious, before long you will find good places, kind masters, and the prospect of a useful life before you.

COURAGE IN EVERY-DAY LIFE.—Have courage to discharge a debt while you have the money in your pocket.

Have the courage to do without that which you do not need, however much your eyes may covet it.

Have the courage to speak your mind when it is necessary you should do so, and hold your tongue when it is prudent you should do so.


Have the courage to make a will and a just one.

Have the courage to tell a man why you do not lend him your money.

Have the courage to “cut” the most agreeable acquaintance you have, when you are convinced that he lacks principle. “A friend should bear with a friend’s infirmities,” but not his vices.

Business Cards.

A NEW PATENT.



If you want a superior set of Teeth on Gold, Rose-Pearl, or Pyroxaline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 509 MONTGOMERY STREET. 5v20-3m

CO-OPERATIVE UNION

Grocery and Provision Store

Removed to 722 Market street, bet. Kearny and Du pont

SAN FRANCISCO.

apl-1f

JOE. THORNHILL,

BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Rollers, Furnaces, Ovens, Grates, Ranges, &c., Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.

24v21-3m

JOHN BOACH, Optician,

Has removed from 522 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted

22v17-3m

Farmers and Mechanics

BANK OF SAVINGS,

No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier.

19v16-3m

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,

BOOK BINDERS,

Paper Rulere and Blank Book Manufacturers.

505 Clay street, (southwest cor. Sansome),

15v12-3m

SAN FRANCISCO.

SAN FRANCISCO

CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,

611 and 613 Front street.

26

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mabogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,

Manufacturer of


PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

5v14tf

SAN FRANCISCO



J. F. PAGES,

SEAL ENGRAVER,

AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 408 Sacramento street,

San Francisco. Orders by express promptly attended to.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,


General Agents,

No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,

PIONEER

Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,

Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.

MEERSCHAUM MOUNTED WITH SILVER.

Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President.

R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,

No. 415 CALIFORNIA STREET.

26v20-qy

DR. F. HILLER,

Homeopathic Physician and Surgeon.

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco.

ma4-6m

Eastern Advertisements.

COUNCIL BLUFFS

ENGINEERS

MINING MACHINERY

IRON BOILERS

WORKS

SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,

costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.

Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late

Improvements.


Send for prices and information. Address

C. F. HENDRIE, Prest., R. J. CORY, Secy & Treas.

1v22-3m cow

Council Bluffs Iowa.

[ESTABLISHED 1826.]



Over 300 Actual Fires put out with it. More than \$1,000,000 worth of property saved from the flames. The Government has adopted it. All the leading Railroads use it. Insurance Companies reduce rates where it is introduced. Invaluable for private Residences, School Houses, Hotels, Warehouses, and all buildings where life and property are in danger from fire. Send for "Its Record."

F. W. FARWELL, Sec'y,

3v22-3ms

122 Washington St., Chicago.

STOUT, MILLS & TEMPLE,

PROPRIETORS OF THE

GLOBE IRON WORKS,

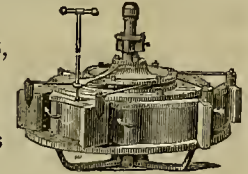
DAYTON, OHIO.

Hydraulic

ENGINEERS,

AND

Manufacturers



OF THE

For cent. of Power guaranteed

(equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFING

Of all Descriptions, and General Mill Furnishing.

Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular.

ms11-6m

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third time. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier. You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,

Economy in the use of Oil,

Freedom from Smoke or Smell,

Reliability in Wind and Motion,

Coolness of Burner and Oil Cup, and

Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the

Complete Satisfaction it Gives

to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render all other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.

Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,

MANUFACTURERS OF

TUBULAR KEROSENE & CHAMPION RAILROAD

LANTERNS,

43 AND 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patent. Will Dealers please take notice?

ma18-3m

Established 1843.

LOUIS ESPENSCHIED,

WAGON MANUFACTORY,

No. 1615 Broadway, St. Louis, Missouri.

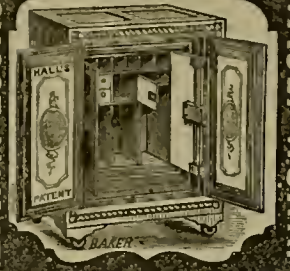
3v22-6ms

SAFES

BANK LOCKS

VAULT WORK.

HALL'S SAFE & LOCK CO.



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO. CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

1st—They have never been Destroyed by Fire.

2d—They have never been Robbed by Burglars.

3d—They are Fire, Damp and Burglar Proof.

4th—They are Superior in Finish to any Safe made.

5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.

6th—Our Locks have stood a Nine Days' Trial by experts without being opened.

7th—We will put from \$1,000 to \$10,000 behind them.

8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.

9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE

the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.

Send for Catalogue and Prices.

ms11-6m

THE

FORSMAN

Iron-Old French

Burr-Stone Mills

Are the best for Grinding or Flouring.

Warranted to do more and better work with the same power than any other.

We build complete

plates

MILLS, including

all the latest and

improved

machines

for

grinding

and

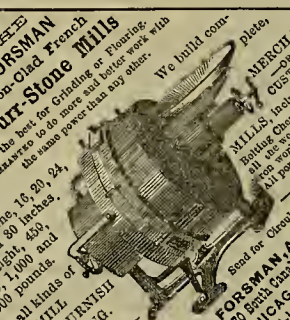
flouring.

Send for Circular.

J. A. FORSMAN, JR.,

No. 75 South Canal St.,

CHICAGO.



Send for Circular.

Improved Universal Wood Worker



For

Jointing, Babbeting, Beveling, Panel-Raising,

Gaining, Planing out Wind, Smoothing,

Planing, Circular Moulding,

Cornering,

BORING AND ROUTING,

Hand-Matching, Beading, Fluting, Sawing,

THICKENING, MAKING, MOULDINGS,

Sash, Door and Blind Work,

Car Furniture, Etc., Etc.

THE MOST USEFUL,

Economical and Labor-Saving Machine of Modern

Invention.

Send for Circular, Etc., to

McBETH, BENTEL & MARGEDANT,

Manufacturers of Wood Working Machinery, Etc.,

HAMILTON, OHIO.


ms11-6m

Withmar Glass and Queensware Company.

IMPORTERS, MANUFACTURERS AND DEALERS IN

China, Glass and Queensware, Lanterns, Looking Glasses &c., &c. 113 N. Main Street, St. Louis Mo. The celebrated Novelty Lanterns always on hand.

3v22-3ms



LEONARD'S

Patent Vapor Jet Burner and

Hand Lamps.

Also, Portable Gas Burners and

FIXTURES.

County and State Rights for sale.

Send for Circulars.

Manufactured and for sale by

D. LEONARD & CO.,

109 Calhoun Place, Chicago, Illinois.

3v22-3ms

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.


Pass'ger	Express	Train	APRIL 1,	Express	Pass'ger
Sunday	Train	Daily.	1871.	Train	Sundays
except d	Daily.			Daily.	excepted
4:00 P.M.	8:00 A.M.	San Francisco	6:45 P.M.	12:30 P.M.	
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.	
7:58 P.M.	7:30 A.M.	San Jose	5:40 P.M.		
9:35 P.M.	12:10 P.M.	Stockton	1:45 P.M.	8:35 P.M.	
	2:10 P.M.	Sacramento	11:15 A.M.	7:00 A.M.	
	4:10 P.M.	Marysville	0:10 A.M.		
	9:00 P.M.	Scandia	4:30 A.M.		
	2:20 P.M.	Sacramento	11:45 A.M.		
	3:25 P.M.	Colfax	8:45 A.M.		
	1:15 A.M.	Road	1:00 A.M.		
	9:10 A.M.	Winnemucca	4:05 A.M.		
	12:00 P.M.	Battle Mountain	1:25 P.M.		
	4:40 P.M.	Eiko	8:45 A.M.		
	6:10 P.M.	Oroden	8:15 P.M.		

EASTWARD.

WESTWARD.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *6:50, 9:10, 10:20 and 11:10 a. m. 12:00, 1:50, 3:00, 4:00, 5:15, 6:45 and *11:30 p. m. (10:20, 11:10 and 4:00 to Oakland only). LEAVE BROOKLYN, *5:15, *6:30, *7:40, 8:50 and 10:00 a. m. 1:30, 2:40, 4:55 and 6:25 p. m. LEAVE OAKLAND, *5:25, *6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m. 1:40, 2:50, 3:50, 5:05 and 6:35 p. m. ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, *7:30, 9:00, 10:10 and 11:10 a. m. 1:30, 4:00, 5:30 and 7:00 p. m. (7:30, 11:15 and 5:30 to Fruit Vale only). LEAVE HAYWARD, *4:30, 7:00 and 10:45 a. m. and 3:30 p. m. LEAVE FRUIT VALE, *5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m. *Trains do not run Sundays. T. H. GOODMAN, A. N. TOWNE, Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

SHORT ROUTE.



The following time will take effect

Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Callstoga.	Sacramento.	Marysville.
8:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.
------------	-------------	------------	------------

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leave	Leave	Leave	Arrives at
Maryville.	Callstoga	Sacramento.	S. Francisco
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	5:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:30 P. M.	2:30 P. M.	7:00 P. M.
-------------	------------	------------	------------

TICKETS for sale at 315 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent. S. R. Branch Office of Western Union Telegraph Com. Pan. Central and Vallejo street wharf. L. C. FOWLER, General Freight and Passenger Agent. Vallejo October 1, 1870. 13v20-ly

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York. Three daily lines of

Pullman's Palace day and Sleeping Cars,

from Chicago

to Pittsburgh,

Harrisburg,

Philadelphia

and New York.

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York without charge.

Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 305 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, 4v22-ly San Francisco, Cal.

Sonora Hotel,

T. BRODIGAN,.....Proprietor

Best Meals and Beds in Sonora, Cal. fe25-3m

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

CALAVERAS G. M. Co.—March 31st. Capital stock, \$2,000,000 in 20,000 shares. Trustees: G. Congdon, A. Jaqueth, J. S. Niswander, J. P. Dyer and B. F. Tuttle.

MAMMOTH GROVE M. Co., Calaveras county. March 31. Capital stock, same; Trustees, same.

ALTONA No. 1 GRAVEL M. Co., Grass Valley. Capital stock, \$600,000 in 12,000 shares. Trustees: W. A. Bateman, A. W. May, J. B. Overton, A. Shepard and D. Wilder.

SEATTLE COAL AND TRANSPORTATION Co.—Capital stock, \$600,000 in 6,000 shares. Trustees: H. L. Hutchinson, (President); W. B. Cummings (Vice-President); S. B. Boswell, C. B. Shattuck and M. W. Allen.

The following have been recorded in the Secretary of State's office, Sacramento:

MORMON SLOUGH CANAL AND IRRIGATION Co. San Joaquin County.—March 30. Capital stock, \$10,000. Trustees: J. Marsh, A. Burket and S. Rainey.

CALAVERAS AND SAN JOAQUIN WATER Co.—April 3. Capital stock, \$200,000.

Meetings and Elections, Etc.

SECURITY SAVINGS BANK.—President, J. Parrott; Vice-President, H. S. Babcock; Secretary, T. F. Baem; Attorney, S. V. Smith.

PHENIX S. M. Co.—April 2. Trustees; M. J. McDonald (President); L. Vesaria, H. F. Cutter, G. S. Dodge and T. J. Owen; Secretary, J. Maguire; Superintendent, G. H. Willard.

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D. Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N., Long. 121° 29' 44" W. Height at Levee above mean low tide, at San Francisco, 74 feet. Height of lower surface of mercury, 94 feet. The amount of cloudiness is designated by figures, 10 being entire cloudiness; 5, half cloudiness; 0, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze, and 10 a hurricane. The means are derived from the daily readings at 7 A. M., 2 P. M., and 9 P. M., in conformity with the arrangements of the Smithsonian Institute.

1871.	DAILY MEANS OF	TEMP.	WIND.	REL.
MONTH.	Barometer.	Air.	Direction.	Humidity.
AND	Ther.	Wind.	Force.	Force.
DAY.	Barometer.	Ther.	Wind.	Humidity.
APRIL.	INCHES.	DEG.	DIRECTION.	PERCENT.
Sunday..	29.864	68	45	28.6
Monday..	29.859	61	53	35.7
Tuesday..	29.853	67	38	38.5
Wednesday..	29.834	56	81	37.5
Thursday..	29.874	50	76	28.9
Friday..	29.883	45	20	18.8
Saturday..	29.842	52	51	18.6

*Thermometograph. †Rain.

REMARKS.—In our observations last week we encouraged the hopes of a speedy fall of rain, in which we have not been disappointed, as our table shows. Although partaking of the character of spring or April showers, of circumscribed extent, still about an average of an inch has fallen over the greater part of the agricultural region of the State, which is enough to relieve the present needs of the growing crop. In only one season (1856-57) of the past 21 years has the rain failed in April; so that if we receive but half the average of this month, which is one and a quarter inches, and are spared by the fierce north winds, a reasonable harvest may yet be expected.

Meteorological Observations in Tulare County.

[Reported expressly for the Press, by ISAAC B. RUM-
RD, of Orange Grove.]

FEB'y.	Ther.	Barometer.	Ins of R'n	Remarks.
1871.	6 1 6 2	6 1 5 2	6 1 5 2	
We. 1	49	57	29.75	29.22
Tu. 2	42	61	53	34
Fr. 3	41	68	62	25
Sat. 4	46	62	58	22
Sun. 5	50	51	22	12
Mon. 6	46	56	53	30
Tu. 7	46	60	51	38
We. 8	40	55	55	33
Th. 9	45	53	55	28
Fr. 10	46	52	50	15
Sat. 11	46	55	53	16
Sun. 12	41	61	57	38
Mon. 13	42	52	56	20
Tu. 14	46	55	49	22
We. 15	41	55	52	19
Th. 16	43	50	51	28
Fr. 17	44	53	55	46
Sat. 18	41	66	63	35
Sun. 19	38	58	57	19
Mon. 20	32	64	62	22
Tu. 21	47	51	51	08
We. 22	44	42	43	28
Th. 23	35	43	47	23
Fr. 24	46	47	46	34
Sat. 25	38	54	56	51
Sun. 26	40	84	60	33
Mon. 27	42	64	61	35
Tu. 28	46	62	36	22

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth, price, (very low) post paid, \$1.00, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

AN INTELLIGENT NOTICE.—The *Deutsch-Am. Gerber* und *Industrie Zeitschrift*, Philadelphia, New York and Leipzig, gives our enterprise the following credit: "The SCIENTIFIC PRESS is really one of the richest in matter of the Anglo-American technical journals. In its department of 'Mechanical' and of 'Scientific Progress' it gives rich and well chosen selections. In its department of 'Correspondence' it adds very considerably to a better knowledge of the country, and particularly of the mining industry. In its 'Mining Summary' the journal gives a careful review of this subject as far as concerns the Pacific Coast and, in part, the West. Under the headings of 'Agricultural Industry' and 'Household Reading' very useful and complete matter is again given; likewise in its miscellaneous is very much of interest, as, for example, concerning railroad matters, patents, inventions, etc., together with illustrated descriptions of inventions and the like."

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$6 piece in a registered letter, in which case we will be responsible for its safety.

Wool Prices in New York.

BROWN'S CIRCULAR, April, 1871.	
DOMESTIC FLEECES.	
NEW YORK, MICHIGAN, INDIANA AND WISCONSIN.	
Saxony Fleeces.....	50@52 Quarter-bld Fleeces.....
and Full-bld Merino.....	48@50 Quarter-bld Fleeces.....
Half-bld Fleeces.....	48@50 Combining Fleeces.....
OHIO, PENNSYLVANIA AND VIRGINIA.	
Choice Set'd Saxony Fl. 60@67 Quarter-bld Fleeces.....	50@52
Saxony Fleeces.....	54@57 Common Fleeces.....
and Full-bld Merino.....	54@57 Combining Fleeces.....
Half-bld Fleeces.....	52@55
IOWA, VERMONT AND ILLINOIS	
and Full-bld Merino.....	46@50 Quarter-bld Fleeces.....
Half-bld Fleeces.....	46@50 Combining Fleeces.....
MISSOURI, KENTUCKY AND TENNESSEE.	
Washed Fleeces.....	46@50 Unwashed Combining.....
Unwashed Fleeces.....	35@39 Canada Fleeces.....
TUB-WASHED WOOL.	
Choice.....	60@63 Inferior and Burry.....
Fair.....	55@58
PULLED WOOL.	
N. Y. City extra Pulled.....	43@46 Country extra Pulled.....
N. Y. City super Pulled.....	43@46 Country super Pulled.....
N. Y. City No. 1 Pulled.....	42@45 Country No. 1 Pulled.....
Lamb's Wool.....	41@43 Country Pulled.....
Western super and ext.....	40@45
CALIFORNIA.	
Spring Clip, fine.....	33@36 Fall Clip, lg wds & b'ry.....
Spring Clip, medium.....	33@36 Extra Pulled.....
Spring Clip, lg wds & b'ry.....	33@36 Super Pulled.....
Full Clip, A. 1.....	30@35 Pulled.....
TEXAS.	
Fine.....	33@38 Inferior.....
Medium.....	32@37 Very Burry.....
Low.....	21@30
FOREIGN WOOLS.	
Cape of Good Hope.....	32@35 Buenos Ayres Merino.....
Mestiza Pulled, X & XX.....	31@35 Buenos Ayres Mestiza.....
Mestiza Pulled, low gds.....	45@52

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]
SAN FRANCISCO, Thursday, April 13.
SOLE LEATHER.—The demand is still equal to the supply, and prices firm.
City Tanned Leather, 3 lb. do..... 26@30
Sunda Cret Leather, 3 lb. do..... 26@30
Country Leather, 3 lb. do..... 26@30
CALF AND KIP SKINS.—The unsettled state of affairs in France still keeps French stocks high, with an upward tendency. Domestic Skins have not changed.
Best French Calf Skins, 3 doz..... \$75.00@100.00
Common French Calf Skins, 3 doz..... 50.00@75.00
French Kips, 3 lb. do..... 1.00@1.30
California Kip, 3 lb. do..... 1.00@1.25
Eastern Wheel Stuffed Calf, 3 lb. do..... 1.00@1.25
Eastern Bench Stuffed Calf, 3 lb. do..... 1.00@1.25
Fair Bridle Leather, 3 lb. do..... 1.15@1.25
Sheep Roans for Topper, 3 doz..... 5.00@13.00
Sheep Roans for Linings, 3 doz..... 5.00@10.00
California Russett Sheep Linings, 3 doz..... 1.75@5.50
Good Foot Cut Boot Legs, 3 pair..... 5.25
French Calf Boot Legs, 3 pair..... 4.00
Harness Leather, 3 lb. do..... 30@32
Fair Bridle Leather, 3 lb. do..... 48.00@72.00
Saddling Leather, 3 lb. do..... 45.00@72.00
Welt Leather, 3 lb. do..... 30.00@50.00
Buff Leather, 3 lb. do..... 22@25

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the *Scientific Press*, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Caution.—Eagle Quicksilver Mining Company.—Location of mines, Eagle Mining District, Santa Barbara County, California.

Notice is hereby given to the public not to purchase or negotiate for the following named shares, designated by the names of the delinquent owners in the Eagle Quicksilver Mining Company by law, and the articles of agreement provided. They were duly advertised and sold in full at public auction, by John Middleton & Son, auctioneers, on Monday, the 10th day of April, 1871, for delinquent assessments thereon and accruing costs of advertising and sale, and will not be transferred by said company.

Names. Shares sold.
Barkley, A. S..... 1
Kays, J. C..... 1
Kays, J..... 1

WM. H. WATSON,
Secretary of Eagle Quicksilver Mining Company, Room 5, 302 Montgomery street, San Francisco, California, April 11th, 1871. apl5-tf

Mountain City Mining Company—Location

of mine, Cope District, Elko county, State of Nevada.
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the eighteenth day of February, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
Best, John T.....	61	400	100.00
Enright, John T.....	63	250	62.50
Greek, H. J.....	42	100	25.00
Hobron, W. M. C.....	23	50	12.50
Hobron, W. M. C.....	24	10	2.50
Hobron, W. M. C.....	25	10	2.50
Hobron, W. M. C.....	26	10	2.50
Read, Francis.....	62	400	100.00
Strong, Harvey.....	28	100	25.00
Sharp, Wm H.....	67	900	225.00
Titus, H. W.....	49	400	100.00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of January, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of April, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 206 Front street, San Francisco. apl-2w

Marble Falls Mining Company.—Location

of Works: Mammoth District, Nye County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 28th day of March, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 4, No. 45 Front street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the first day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless the same shall be made before, will be sold on Monday, the 22nd day of May, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
JAS. N. SYDALL, Secretary.
Office, Room No. 4, No. 45 Front street, San Francisco, California. apl-4w

North America Consolidated Mining Company—Location

of Works: White Pine Mining District, County of White Pine, State of Nevada.
NOTICE.—There are delinquent upon the following described stock, on account of Assessment levied on the 15th day of February, A. D. 1871, (also amount due by original owners on reserved stock) the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A F Collins.....	16	666	33.30
A F Collins.....	40	166	16.60
Thos. Cassin.....	61	166	16.60
W Everson.....	14	666	33.30
W Everson.....	42	166	16.60
H O Hemmaway.....	19	666	33.30
H O Hemmaway.....	43	166	16.60
P F Mohrhardt.....	44	166	16.60
S Pinkham.....	20	666	33.30
S Pinkham.....	45	166	16.60
Geo R Spinnay.....	12	666	33.30
Geo R Spinnay.....	46	166	16.60
J J Steele.....	49	166	16.60
J J Taylor.....	48	166	16.60
A F White.....	4	1000	60.00
A F White.....	38	250	26.00
Thos Wells.....	6	1000	60.00
Thos Wells.....	39	250	26.00
W E Wood.....	60	166	16.60

And in accordance with law, and an order of the Board of Trustees, made on the fifteenth day of February, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 6, No. 302 Montgomery street, San Francisco, California, on Thursday, the 27th day of April, A. D. 1871, at the hour of 2 P. M. of said day, to pay said delinquent Assessments thereon together with costs of advertising and expenses of sale.
W. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. apl-1

Noonday Silver Mining Company—Location

of works, White Pine Mining District, White Pine County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 10th day of April, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the fifteenth day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
CHARLES E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. apl5-5w

Silver Sprout Mining Company—Location

of Works and Mines, Kernsarge District, Inyo County, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of March, 1871, an assessment of \$6.25 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, or stock in the company, at the rate of \$12.50 per share in like gold coin, to the Secretary, at the office of the company, No. 206 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 1st day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
T. B. WINGARD, Secretary.
Office, No. 206 Front street, San Francisco, Cal. ma25

Yosemite Consolidated Mining Company—Location

of Works, Santa Fe District, Lander County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1871, an assessment (No. 4) of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 28 Merchants' Exchange, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the twenty-second day of May, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the nineteenth day of June, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the Board of Trustees.
DAVID WILDER, Secretary.
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. apl5-lm

E. J. FRASER, M. D.,

No. 108 Stockton Street, S. F., Cal.

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE Ransom Patents, the most perfect SANDSTONE, specimens of which may be seen in the ornamentation of Dr. Stone's Church, now in course of erection, at the corner of Post and Mason streets. For architectural, ornamental and mechanical purposes, this stone surpasses all natural stone of its class.

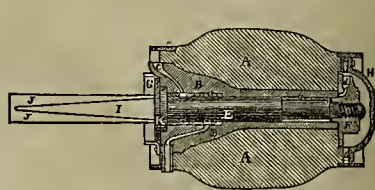
GAINSTONES from this factory, which we make of any desired size, may be seen at many of the great mechanical shops in this city, where they are held in high esteem.

The factory is now turning out Architectural Stones, Cemetery Stone, Grindstones, Garden Ornaments, in the way of Vases, Fountains, etc. The nature of the art admits of our moulding the stones in any desirable form, and enables us to compete successfully with all stone wrought by hand. In England, where the stone has been manufactured largely for the past fifteen years, it is considered, for durability and strength, to surpass the best English Sandstone. The British Government employs it largely in its public buildings, both at home and in its Colonies; and as we have secured the services of MR. ERNEST L. RANSOM, late Superintendent of the home works at Greenwich, England, we are turning out stone fully equal to the English standard.

For particulars, apply at the Factory, corner Turk and Larkin streets. ma18-tf

CARLES R. DONNER'S PATENT

IMPROVEMENT IN



HUBS AND AXLES.

This new patent is for an improved manner of uniting the steel spindle, I, with the iron portion of the axle, J, with the double collar, K, and also in the formation of a sort of hub on the holding-nut, F, which hub can be shortened so as to bring the new collar, and thus compensate for any end wear of the box; also in the use of secondary steel boxes, A, C, within the main axle-box, B, and a series of oil-cups, C, d, arranged on the hub and an outer nut, which opens at various points within the box. A cap and protecting-ring are secured at the outer and inner ends of the hub, respectively, to protect from dirt.

An operative model and full description are necessary to show fully all the merits of the invention. The patentee can prove the value of the invention from actual working; that it is an easy mode of construction and furnishes a durable and more complete hub and axle than any other that has yet been devised.

The attention of Manufacturers is solicited. All persons are cautioned not to infringe on the above patent under penalty of the law.

CARLES R. DONNER, Inventor and Patentee, Sonoma, Cal. apl6-m

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their name is upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcester-shire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see names on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Croese and Blackwell, London, &c., &c., and by Grocers and Others universally. Agents: CROSS & CO., San Francisco. 1v22-lycow

DICKINSON'S

Patent Shaped Diamond Carbon-Points.

Fig. 1 Fig. 2 Fig. 3 Fig. 4

Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burns, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June 1870. For Circulars descriptive, and Prices, send stamp to apl5-6m J. DICKINSON, 64 Nassau St., N. Y.

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,

ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

Album of Designs,

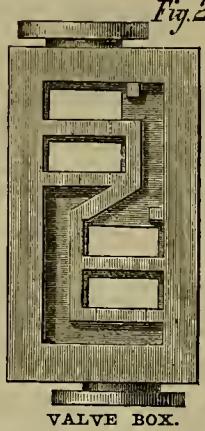
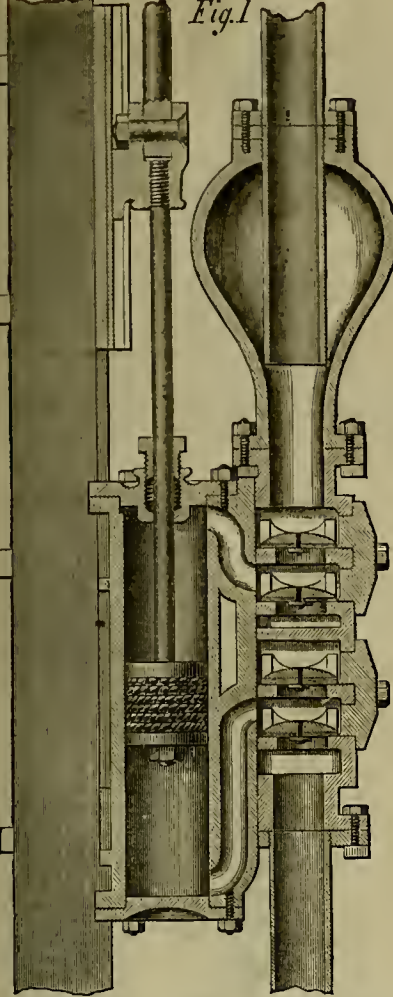
showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap15-ly

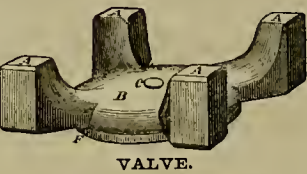
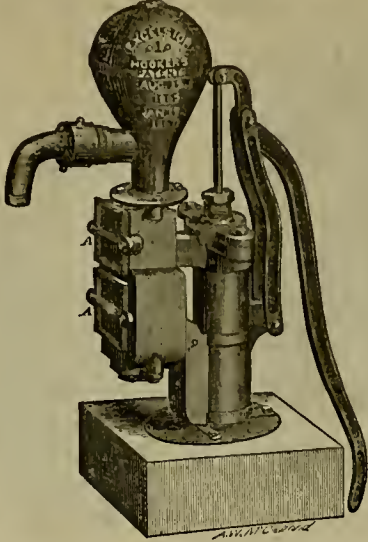
Ahead of the World.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.
HOOKER'S PATENT. August 13, 1865, and January 15, 1867.

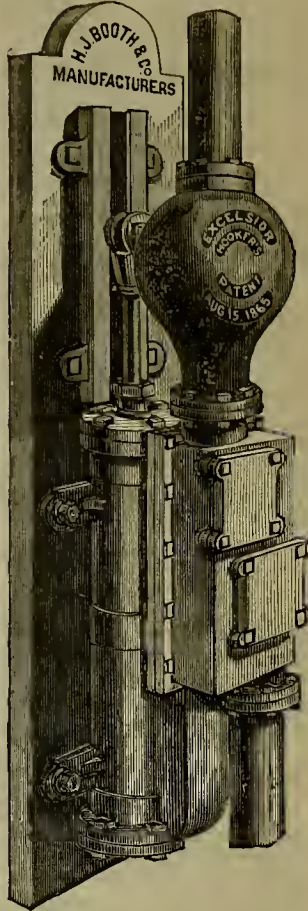




IT IS WELL KNOWN THAT THE EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES. IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE EVERY PUMP IS WARRANTED.

FOR DOMESTIC USE FIRES OR IRRIGATING PURPOSES IT IS FAR SUPERIOR TO ANY OTHER PUMP.

STANDARD DURABLE AND PERFECT AND SUBSTANTIAL IN EVERY RESPECT.



We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pumps of equal caliber. It has Poppet Valves, which can not be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump, for its SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. See circular for particulars.

General Agents.—MESSRS. BRITTAN, HOLBROOK & CO., 111 and 113 California street, and 17 and 19 Davis street, are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. H. J. BOOTH & CO., Union Iron Works, First Street, corner of Mission, San Francisco, who manufacture and have the sale of the Excelsior Pump.

V. CUSHING, Proprietor, San Francisco.

We have BRASS-LINED, BRASS PISTON and BRASS VALVE PUMPS, at greatly reduced prices. Also STEAM PUMPS.

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand
**SPORTING,
MINING,
And BLASTING
POWDER,**

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m
JOHN F. LOHSE, Secretary.

A NEW ARTICLE.

Composition Pipe for Conducting Water.

The attention of Railroad Companies, farmers, dairymen and others, is called to our new Pipe for leading water. It is lighter than ordinary lead pipe, and much cheaper than iron, will stand a heavy pressure, and deliver about one-third more water than iron pipe, provided the sizes are the same.

We are now manufacturing all sizes, from half-inch to two-inch, and can fill large orders at short notice and put on reels for shipment, the same as lead pipe.

Samples can be seen at our office.

No. 116 California Street,
THOS. H. SELBY & CO.

apl-1m

SONORA HOTEL,

T. BRODIGAN,.....Proprietor

Best Meals and Beds in Sonora, Cal. fe25-3m

STOP PAYING RENT.

San Francisco Co-operative Land and
BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$2.50
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. O. MORTON, Treasurer; H. B. CONGDON, Secretary. apl-3m.

Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CAYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer,

D. V. PHELPS,
San Leandro, Alameda County, Cal.

al-ly-awbp

PORTABLE MILLS.

GRIST MILL, Two Run of Stone Complete for \$1,200.

FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smutters, Corn Shellers, Flour Packers, Hominy Mills, Belting, Picks and Mill Work generally.

SEND FOR DESCRIPTIVE PAMPHLET.

ms-11wm
ISAAC STRAUB & CO.,
Cincinnati, Ohio.



**THOMPSON BROTHERS,
EUREKA FOUNDRY,**

and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

OWENS, LANE, DYER & CO.
MANUFACTURERS OF
The Eclipse Saw Mills,

Combining **THREE PATENTED** Improvements
Essential to The Well Working of Circular Mills.



WITH ALL SIZES OF
**PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.**

With the celebrated
STEAM THRESHER, "California Chief."

For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF
THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN
Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIBBE.

MR. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-7f

**WHY THE WILSON
Patent Steam Stamp Mill
IS THE BEST AND
Most Desirable Mill for Crushing Ores.**

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the
Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed
to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works. Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,
San Francisco.

SALT LAKE CITY.—Chas. Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How
street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris, Wm. Alvord,
Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
2iv17-7y

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

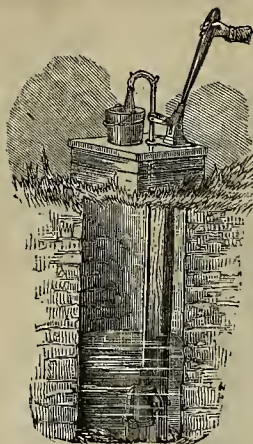
14v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERRECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

California File Mannf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.REAPER AND MOWER SECTIONS, SICKS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-gy

THE AMERICAN SUBMERGED PUMP.

Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair
than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering
stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In
short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.

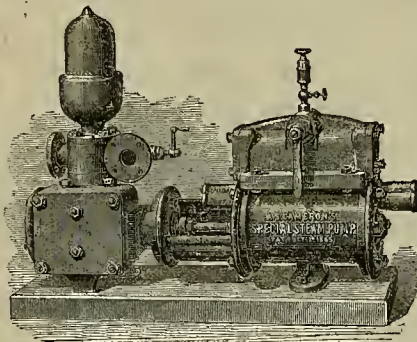
No	0.—Iron, \$15 ;	Iron Galvanized, \$17 ;	Capacity, 500.....	Gallons per Hour.
"	1.—" 25 ;	" 30 ;	1,000 to 1,200.....	" "
"	2.—" 40 ;	" 45 ;	2,000 to 2,500.....	" "
"	3.—" 70 ;	" 75 ;	4,000.....	" "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY

PACIFIC PUMP MANUFACTURING COMPANY,

318 Pine street, San Francisco.

CAMERON'S
STEAM PUMPS.PICKERING'S
Engine Regulators.GIFFARD'S
INJECTORS.BARTOL'S
STEAM TRAP.
Surface Condensers.DAVID STODDART,
114 BEALE STREET, S. F.

VULCAN IRON WORKS.

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL

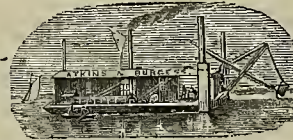
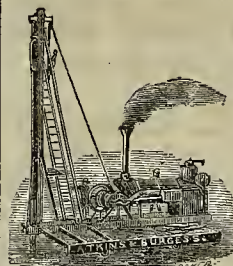
GEARING AND

GENERAL MACHINERY.

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 3v22-3m

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and FramesHAMMERED IRON
Of every description and size.Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention
The highest price paid for Scrap Iron 9v143m

RUSS PATENT

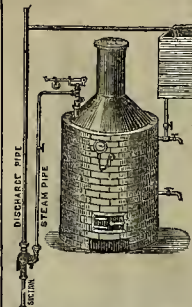
MONITOR MOLDING MACHINE,

MADE BY

R. BALL & CO., Worcester, Mass,

Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Facto-
ries, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-eov1y

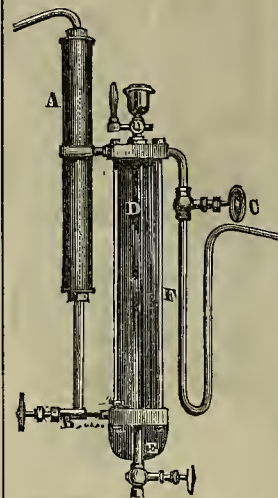
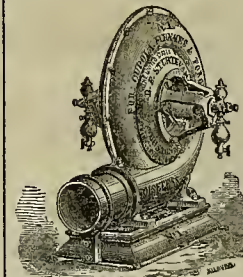
STEAM JET PUMP.

Blakslee & Williams' Patent.—For
Water, Oils, Acids, Etc.The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROOK, 117 California st., San Fran-
cisco; KEEL & BARGAIN, Stockton. Can be seen at
McAFEE, STERN & Co's. Boiler Works, S. F. 21v21-tf

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D, is a glass chamber which contains
the lubricant. C, is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted siphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the ejector
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. 1613-tf

STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the differ-
ent sizes always in
store. 4v22

The Stetefeldt Furnace.

For information of any description respecting [this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.All kinds of Brass, Composition, Zinc, and Bablitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rubber Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hot Cocks and Con-
nections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED V. KINGWELL.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills
AND DRILLING MACHINERY.For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Spe-
cial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF
**PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.**

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.
SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,
— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
**MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.**

MANUFACTURER OF
Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

NELSON & DOBLE,
AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
4v14r

MACHINERY
— AT —

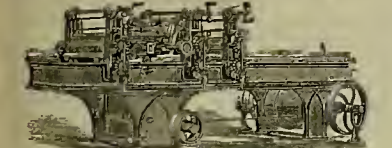
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents, BERRY & PLACE,
112 and 114 California street, San Francisco.

For **Hair Felting**
Steam Pipes & Boilers

Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

Varney's Patent Amalgamator.
These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.
They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.
Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works.
655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.
HAYLAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles
of Gold, 20v21-tf

DARLING & CO.,
Importers, General Agents and Commission Merchants.
Machinery, Merchandize and Supplies of every description Purchased and Sold on
Commission,
AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS

SELF OILERS.

These Oil Cups are too well known to
require any lengthy description;
the following are the main points
of advantage.

We guarantee a saving of
75 PER CENT OF OIL.

They are composed of a transpar-
ent Glass Cup, mounted in Brass,
provided with a hollow tube, inside
of which is placed a loose acting
solid or hollow wire, which acts as
a Feeder and Regulator. The wire
rests constantly upon the Journal,
thereby acting with the bearing in
its motion. The wire is so regu-
lated inside the tube as to feed ac-
cording to the demand only. There
is no flow of oil whatever while the
machinery is not in motion.

They are as reliable in Winter as in Summer.
Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' con-
stant use.
They are constructed in a very neat and substantial manner.
We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give
perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position
or upon an angle of 45 degrees. Permit the Rod to rest upon the Journal, and have a perfectly free action. If you
desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal
that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed
NATHAN & DREYFUS, New York, Jan. 1st, 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

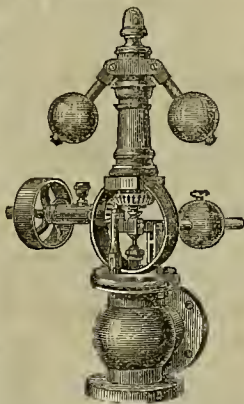
GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several im-
portant improvements have been made
and two additional patents obtained
we feel justified in recommending it
to all parties using Steam power, and
warranting it to be the most perfect
regulator in the market.

The Gardner Governor is so well
known that we think it unnecessary to
enter into a detailed explanation of the
principles involved, or details in its
construction, merely giving the leading
objects realized by this important in-
vention. The Governor combines with
the greatest simplicity of construc-
tion, accurate regulation of speed, pos-
itive insurance against all accidents
liable to occur from slipping or parting
the Governor or driving belt, and a
convenient arrangement for adjusting
the speed of the Engine while in mo-
tion, without change of pulleys.

The construction of the Governor is
extremely simple, having no springs,
inside joints, swivels or parts liable to
disarrangement, all the several parts
are duplicates of each other in the same
series; the most skillful workmen are
employed, the best material used and
the machinery employed especially
adapted to their manufacture. Thus

We warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheer-
fully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.
When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either
BLACK OR FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup
to the public, we desire to call
very particular attention to its
many special advantages.

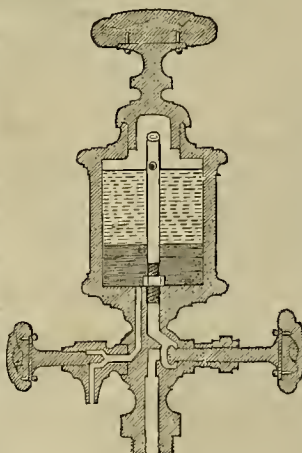
FIRST.—Nothing but clean oil or
tallow is admitted into the Cyl-
inder, no lime or sediment of any
kind.

SECOND.—Its great economy of
both tallow and fuel.

THIRD.—It is self-acting, and
supplies the lubricating material
only while the Engine is in
motion.

FOURTH.—Its certainty and regu-
larity of feeding, and increase of
the power of the Engine.

The principle upon which this
apparatus is founded is that, in-
stead of admitting tallow into the
Cylinder in considerable quantities
at uncertain intervals by means of
tallow cups, grease cups, and other
crude contrivances, and allowing
it to be instantly blown out at
the exhaust (as must necessarily
be the case), this cup, by its pecu-
liar action, delivers the lubricant



in drops into the body of the
steam, which thereby becomes
thoroughly impregnated or greased
before passing into the steam chest
or Cylinder; the consequence is,
that instead of falling to the bot-
tom of the Cylinder, as it does
when admitted through a tallow
cup (which passes the lubricant
from the bottom of the cup to the
Cylinder), it enters into the form
of minute globules, and hence the
whole of the internal parts of the
engine become regularly and con-
stantly greased. The result of its
action has been proved in a very
great number of cases to be an
enormous saving of tallow, a con-
siderable increase in the power of
the engine, a great saving in fuel,
and reduction of internal friction
to a minimum.

These Lubricators will save you
75 per cent. of the Lubricating
Material, and cost no more than
the common Compression Cups.

The above Goods are Sold at
Factory Rates.

For Price Lists or information address DARLING & Co., 629, Washington Street,

San Francisco, California.

Traveling Agent—R. K. COLCORD.

5v22c6w-6m

LANE & BODLEY'S



PORTABLE STEAM ENGINES.

From eight to twenty-five horse power, adapted
to Farm, Plantation, Saw and Grist Mill use.
OUR PORTABLE ENGINES excel in having ca-
pacious wrought iron Steam Boilers, with Man Head
Driving free access to the boiler, wrought iron Smoke
Head, Lift and Force Pump, and for beauty of design
and efficiency.

ALSO, Stationary Engines, Boilers, Saw Mills,
Shafting and Wood-working Machinery.

AGENTS, Catalogues furnished on application.
W. L. Cushing, New Orleans; LANE & BODLEY,
John F. Hale, Nashville, Tenn.; John & Water St. Cincinnati, O.
G. S. Warner & Son, Detroit

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco
2v21-tf

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated 'Dutch
Anchor brand Bolt-
ing Cloths; Smit
Machines; Braun
Dusters; Mill Picks;
Mill Picks dressed;
Millstones repaired
rebuild and bal-
anced.

MANUFACTURERS OF

French Burr Mill
Stones, Portable
Mills of all sizes,
Mills of all sizes,
Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed,
Salt, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz.
2v22-lyna 41 First st., San Francisco.

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE, Manager.

J. A. MAERS, Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v2c

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

**Assayer and Metallurgical
CHEMIST,**

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL.

7v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

**Richardson & Co., Copper Ore Wharves,
SWANSEA.**

RICHARDSON & Co. have been for thirty years established
in Swansea as Agents for the preparation, Sampling, Assay-
ing, and Sale of Copper, Silver, Gold, Lead, Zinc, and all
other Ores and Metals, for which they have extensive Ware-
houses and Wharves under cover, 1,000 feet of Quay Front-
age within the Floating Dock, and the most complete Ma-
chinery and Appliances. They are also prepared to make
advances against Ores in anticipation of realization, and to
guarantee all payments when required. 5v22-lyrs

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters,
Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and prac-
tical instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory. 11v21-3m

NEVADA METALLURGICAL WORKS,

19 and 21 First st., in Olden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination A p-
paratus to our establishment, we are now prepared to
make working tests by any process, assay ores and pro-
ducts. Returns guaranteed. Answers to all metallur-
gical questions given. 25v21-3m

Dewey & Co., U. S. and
Foreign Patent Solicitors
and Counsellors, Scien-
tific Press Office.
Principal Agency
in the Pacific
States. Es-
tablished
1860.

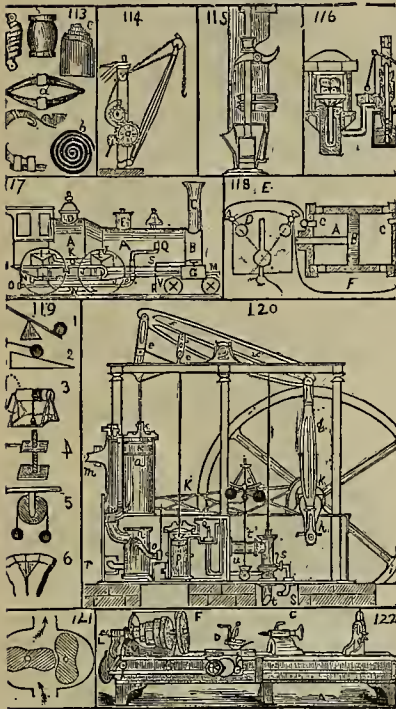


Plate V of Illustrated Mechanical Movements, described in Dewey & Co's 48 page circular of Information for Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

DEWEY & CO.,
Patent Agents, No. 414 Clay st., San Francisco.

BAIRD'S

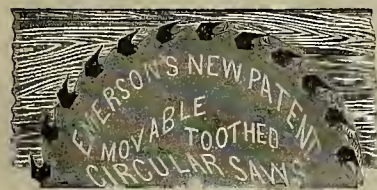
BOOKS

FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BROS. & CO. and LIPPENCOTT & CO.

Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-tf
Pittsburgh, Pa.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

Connecticut Mutual Life

INSURANCE COMPANY,

OF HARTFORD, CONN.

Incorporated 1846.

ASSETS, - - - - - OVER \$30,000,000.

Surplus over \$8,000,000,

INCOME FOR 1869, - - - - - \$8,978,751 25

Appropriated for Dividends payable in 1870, \$2,300,000.

Total Claims by Death paid to date, over \$9,566,000. Total Dividends Paid to Date, over \$6,700,000.

Ratio of Expense to Total Income 8.89, Only.

A Purely Mutual Company.

All its surplus is equitably divided among the Policy-Holders in

ANNUAL DIVIDENDS,

Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making

ALL POLICIES NON-FORFEITING.

OFFICERS:

JAMES GOODWIN, President. ZEPHANIAH PRESTON, Vice-President.
EDWIN W. BRYANT, Actuary. WOODBRIDGE S. OLMSTEAD, Secretary.
LUCIAN S. WILCOX, M. D., Medical Examiner.

General Agent for the Pacific Coast.

JAMES B. ROBERTS, 315, California Street, San Francisco, Cal.

CALIFORNIA CHEMICAL PAINT COMPANY,

MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE

Purest White, and 100 Different Shades,

MIXED READY FOR APPLICATION.

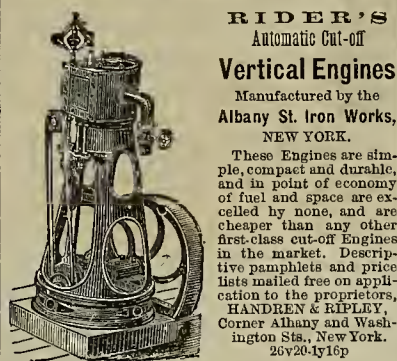
This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

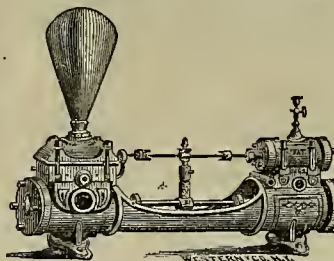
ap8-3m



RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDREN & REPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

A. L. FISH, Agent.
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,

619 Front street, San Francisco, by contract or otherwise.
Communication by letter to Lock Box 1161, San Francisco Post-office. tel8-tf-16p

MAGAZINES.	P. An.	W. E. LOOMIS,
Harper's...	\$4 00	News Dealer
Atlantic...		AND STATIONER,
Godey...		S. E. corner of Sansome and
New York Ledger...		Washington streets,
Blackwood...	3 00	SUPPLIES ALL
Hours at Home...		Eastern Periodicals,
Good Words...		BY THE
Peterson's...	5 00	Year, Month, or Number.
Arthur...		
Lady's Friend...		
Harper's Weekly...	6 00	
Chimney Corner...		
Literary Album...		
London Society...	15 00	
All the Year Round...		
London Ill. News...		

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

ash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

CAUTION.

BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETT'S being the original inventor and Sole Maker in the United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbett Metal CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liqueur, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garrett's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS.
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

MANUFACTURERS OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE. Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns



Sold by all Dealers throughout the World.

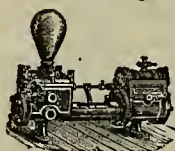
Pacific
Insurance Company.
No. 422 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

O. J. KINO, B. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. (10p)

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 22, 1871.

VOLUME XXII.
Number 16.

Two Free Universities.

Whatever may be thought or said of the character of the late Horace Hawes, so much must be placed to the credit of his intentions,—that he was the first Californian who has ever given a large sum of money, or its equivalent, to the public. With his death commences a new era for our coast—the era of public bequests.

The property which Mr. Hawes donated, although it has yielded but a small income, can be made by proper management, we are told by one of the trustees, to return a very large revenue. There are some rumors, however, that the will is to be contested. As to whether the extra outside amount will be raised, we are exceedingly doubtful. But there is a number of persons sanguine that before long California will be able to boast of having two free universities.

The boast certainly sounds well. We have no objection to it. But the important question occurs as to whether it will be anything more than a sound. We have already one free university, for which the legislature has made large provision. Yet the institution appears to be crippled by want of more funds, and the youth of California are by no means rushing to its halls in such numbers as to crowd them. Indeed, the Regents have been obliged to have recourse to preparatory courses and outside lectures, in order to get sufficient names to make a respectable showing in the catalogue.

Whether Mr. Hawes had a mistrust as to the future of our State University, we know not. That his intentions were excellent, we are willing to agree. But that it is wise or even of the slightest practical utility to set up a new university on every possible pretence, we do not believe. One well-endowed institution will be amply sufficient for this State for the next hundred years. We have a proposition to make for the consideration of future university founders. If they desire to set up distinct institutions, let them found colleges in connection with our present university, to be managed somewhat after the manner of the various colleges which, at Cambridge and Oxford, England, go to make up a grand university. We hope some day to see this idea practically carried out.

The McCormick Prize Mower.

We have previously spoken of the McCormick harvesting machines, which have made such a revolution in farming operations within the past twenty-three years. About a month ago we gave an illustration of the "Advance" reaper and mower. Today we illustrate another machine of Mr. McCormick's, which is called the "Prize" mower.

This mower is identical with the "Advance" when stripped of its reaping parts. It is a two-wheeled machine, cuts a four-foot swath, and its cutting power, it is said, cannot be choked by the worst of matted

nature of the ground, and regulated so as to bear up all the weight of the frame behind the wheels and yet keep the cutter-bar within an easy bearing on the ground, while at the same time it communicates an easy, pleasant motion to the machine when working on rough ground.

There are other points which might be dwelt on, but the best description of the mower is the machine itself and its practical working. For further information on these points, address C. H. McCormick & Bro., Chicago.

A Pleasant Reception.

The Mechanics' Institute, which, under the lead of its energetic President, Mr. A.

the Institute for its warm greeting, and complimented the coast on having such a society. Referring modestly to himself, he claimed to be in certain respects a pioneer Californian, having built the first American steamer, the California—still in service—which ever entered the Pacific Ocean, and the first to enter the Golden Gate, and having been ever since interested in enterprises connected with the State. Mr. Webb also built the first American steamer ever crossing the Pacific Ocean, the Colorado, the pioneer vessel carrying our mails to China, as also the connecting steamers on both sides of the continent. Mr. Webb's remarks were warmly applauded.

Mayor Selby was then called on and responded. It is the first time that we remember when our chief city officer has made a speech, he being more given to deeds than to words. He spoke, as he acts, quietly but to the point. He referred to the want of manufacturing establishments on our coast, and to our preeminent advantages therefor, dwelling on the special advantage of our favorable climate,—a matter of very considerable importance. Alluding to Mr. Webb, he said that we needed the presence of such a man, whose vigor, intelligence, experience and wealth can do great things for the coast, while realizing himself a handsome profit for his labors and ventures.

Collector Phelps, an excellent man for

such an occasion, followed in a few eloquent remarks. Mr. H. F. Williams then spoke at some length. Mr. Irving M. Scott made one of the best speeches of the evening, representing the iron interests of the coast, and telling how we could now assist by our mechanical skill in such enterprises as those of Mr. Webb. Mr. B. Hyde spoke for the inland transportation interest, and then Mr. Diekey, a ship-builder, recently from Scotland, concluded with interesting remarks, giving good, sound facts.

After the speeches, greeting by the American hand-shake was given to Mr. Webb by a large number of those present.

IRRIGATION.—The Woodland Ditch Company have opened their old ditch, and farmers along the line of it are supplied with water for irrigation at the rate of \$4 per foot for 24 hours.



THE PRIZE MOWER AT WORK ON STEEP LAND.

grass. It is geared high and cuts clean and clear with the horses on a slow walk. The cutting apparatus has been proved by the severest tests.

The Prize mower is supplied with all the usual conveniences of levers, and is the only one which has the tilting lever. By this arrangement the edge of the cutter can be set at any angle desired, in a moment, and without dismounting from the seat. This is invaluable in preserving the edge of the knife while cutting over rough, stony ground, dead furrows, gullies or sandy soil, as will be appreciated by those who are conversant with such machines.

Another peculiar feature is the frame spring, which does away with the old plan of having a small roller or wheel behind the shoe, and enables one to get rid of the clogging dirt and cut grass. By means of a nut on a long-threaded screw, this spring can be made stiff or limber to suit the

S. Hallidie, is ever alive to assist in the important events of the day, gave a very pleasant reception on Wednesday evening, to Mr. W. H. Webb, the distinguished mechanic, the chief of American ship-builders. This gentleman coming to our shores, as Mr. Hallidie remarked, not as a sight-seer or critic, but to establish and consummate a great enterprise, an enterprise which binds nation to nation, and by its intercommunication develops industrial resources, latent wealth, and a high civilization, it was proper that the Mechanics' Institute of the Pacific coast should greet him, a fellow citizen, a fellow mechanic, with a warm, hearty welcome.

Mr. Hallidie, in brief but well chosen terms, welcomed Mr. Webb in the name of the Institute. He alluded to the guest's high position, and to the nobility of the mechanic's calling. Mr. Webb replied in a very appropriate manner. He thanked

MECHANICAL PROGRESS.

HYDROSTATIC PRESSURE ON STEAM VESSELS.—The London *Artizan* has the following in reference to this power as a temporary aid, always at hand, in the working of steam vessels: "One of the great inconveniences in screw vessels when sailing is the dragging of the propeller. There are other obstructions and difficulties encountered in navigating, which are only to be got rid of by a temporary application of force. Steam cannot be expected to be constantly maintained against every emergency, and, indeed, is not always available. The hydrostatic pressure is always at hand, and requires no lighting of fires or any other preparation. It is not only ever present, but economic. It has only to be applied when required, and the waste water discharged into the bilge can be pumped out at any convenient opportunity. When the screw shaft has been some time at rust it cannot be started unless a considerable speed has been got upon the ship, not, indeed, less than five or six knots; but once started, the screw would continue to revolve until the ship's speed had fallen to about three knots. Indeed, every practical sailor will be very well aware of the immense advantages of being able to start the end of the screw shaft into motion or to continue it in action, under occasional circumstances, for a short period. An apparatus proposed by Admiral Inglefield has been manufactured in Clerkenwell, and was tested a short time ago. It consists of a hydraulic cylinder, to be placed on the keel of the ship, with a piston and rod, very much after the manner of the ordinary steam cylinder. Into this the water will be admitted, through an ordinary Kingston valve. The diameter of the cylinder is 30 inches; the length of stroke 12 inches; and the machine is capable of making from 18 to 20 strokes a minute. To the piston-rod of this cylinder is attached a plunger pump, of the diameter of 3 inches, thus giving an accumulated force in the pump of say 100 times the pressure in the working cylinder, or equal to 1,000 pounds on the square inch. The water is conveyed, from a chamber surrounding the pump, by a pipe to a 4-inch hydraulic ram attached to the end of the lever of a ratchet brace, the ratchet-wheel of which is keyed fast to the stern shaft of the propeller. There is a valve hox attached to the ram cylinder, which is actuated by a pin in the ratchet lever, to which is connected a rod working the valve, thus causing a continuous action of the ram as long as the water pressure is permitted to act. * * The value of such a power, always ready as soon as the valve is opened, for any work, steering, turning turrets or screw shafts, raising guns, or, in ships provided with the proper wells, raising the screw bodily, is scarcely to be over-rated."

AMERICAN AND ENGLISH ENGINE BUILDING.—We clip the following from an article entitled "Iron Manufactures in Great Britain," by Prof. R. H. Thurston, U. S. N. A., in the *Journal of the Franklin Institute*:—"American engineers have been more successful than the British in securing small clearance, prompt closing of the cut-off valve, and in attaching the regulator to the expansion valve, while the latter exhibit a much better appreciation of the economical value of the steam jacket where high steam and great expansion are adopted. In both countries another requisite for economical practice—high piston speed—is gradually becoming fully recognized. One of the most interesting examples in this department of transatlantic engineering is found in the engines of Messrs. A. M. Perkins & Son, of London. This firm, which was founded by an American, is guaranteeing a consumption of less than two pounds of best coal per horse-power per hour with their mill engines, and claim, in some cases, to have brought the figure as low as one pound. These engines are of a peculiar form of 'compound engine,' the cylinders steam jacketed and vertical, the valve stems rotating, with their stuffing boxes placed at the ends of long shells surrounding the stems, the intention of the arrangement being to avoid burning the packing. Surface condensers are used and the feed returned to the boiler at the boiling temperature. The steam is cut off at an early point in the stroke by an independent cut-off valve. The boilers are composed of lap-welded tubes, 3 or 4 inches diameter and $\frac{3}{8}$ to $\frac{1}{2}$ inch thick, and are tested to 2,500 or 3,000 pounds per square inch. Where the condenser sup-

plies an insufficient amount of feed water, the residue is furnished by a still. Steam is carried at from 250 pounds per square inch upward, the safety-valve on Messrs. Perkins' own boiler being weighted to 600 pounds per square inch."

COMPRESSED AIR IN MINING.—The *Colliery Guardian* says that the pumping and the coal hauling in the Holmes Colliery, near Rotherham, England, are now done by means of compressed air. We quote in reference to the pumping arrangements:—"The air is compressed on the surface by a double-cylindred steam engine, with 18-inch cylinder and 3-foot stroke, with two air compressing pumps, 20 inches in diameter and 3-foot stroke, worked direct from the steam engine. Near this steam engine is placed a large air receiver, while corresponding with this in the mine, at a distance of nearly one mile, are three receivers connected by short cast-iron pipes, so as to form one, this plan being found necessary in order that the receivers could be made on the surface, and connected in the pit without riveting, as safety-lamps are exclusively used at the colliery. At this part of the mine also is an air engine with two cylinders, each 14 inches in diameter, with a 12-inch stroke, working two double-acting force pumps 5 inches in diameter, with a 12-inch stroke. The compressed air is conveyed from the compressing engine on the surface to the air engine in the mine in 7-inch cast-iron pipes. The discharge pipes of the pumping apparatus worked by this compressed air are 5 inches in diameter and nearly 1,000 yards long, having a vertical lift of nearly 100 yards. The apparatus was first worked on the 6th of January last, and the steam engine was worked at the rate of fifty strokes per minute, a uniform pressure of 25 lbs. per inch being maintained for eight hours at the surface and at the underground receiver. The air engine was worked during that time at the rate of fifty strokes per minute, 160 gallons of water per minute being raised."

NEW ROTARY ENGINE.—Wm. Vickery, of Maine, has patented an engine which is thus described in the *Chicago Railroad Gazette*:—"It has within a circular casing two solid wheels separated by a partition. The circular casing is enough larger than the wheels to form an annular chamber to receive pistons fitting the same. Upon the top of the casing are placed the valve seats, and through these are the ports through which enters the steam. Each wheel has its own inlet port and valve. Drop valves compel the steam to work only on one side of the pistons. The drop valves are raised when the pistons pass by means of inclined surfaces on one or both sides of the pistons, according as the engine is designed to move in one or both directions, but are pushed down again by springs. The drop valves are between the exhaust and inlet ports, so as to be raised after the steam has been exhausted and before it is again admitted. The valve stems are attached to rocking shafts, which are pivoted to suitable supports. The shafts are pivoted to a cam set on the shaft of the two solid wheels of the engine, and so operate as to open and close the valves as required to admit and let off the steam."

LARGE BLAST FURNACE ENGINE.—The *Iron Age* of April 6th says that the proprietors of the Fulton Foundry at Pittsburgh "have contracted to build for the Vulcan Iron Works, of St. Louis, the largest blast furnace engine ever erected west of the Alleghanies. This will be a vertical, direct acting, condensing engine, sixty inches bore and nine feet stroke, with blowing cylinder one hundred and eight inches in diameter and nine feet stroke, with two fly-wheels, twenty-seven feet diameter, weighing twenty-five tons each."

MACHINE FOR MAKING RAILROAD SPIKES.—Two Ohio men have patented a machine which turns out, according to the *Marietta Register*,—"75 well finished, smooth spikes, weighing 8 ounces each, per minute. Its capacity is fully 8 tons every ten hours, including all necessary stoppages. The spikes are superior in finish to any used on the railroads in this vicinity. A mill will probably be erected in Harmar, machines constructed, and the manufacture of spikes entered into on a large scale."

RAILWAY WATER TROUGHS.—Troughs for supplying locomotives with water, while in motion, have been laid on the Pennsylvania Central Railway, at Derry and near Johnstown. The troughs are 18 inches wide, 6 inches deep, and 1,500 feet long. The scoop will take up 2,200 gallons.

SCIENTIFIC PROGRESS.

THE WHITE BESSEMER FLAME DUE TO HYDRO-CARBON.—W. Mattieu Williams is giving, in *Nature*, a series of articles on the chemistry of the Bessemer process. No. 3 of the papers is especially upon the brilliant white flame of the second stage, which is totally different from the carbonic oxide flame produced by the combustion of carbon *per se*. He considers the whiteness due in a considerable degree to hydro-carbon. We quote:—"We have one set of workshop facts and laboratory experiments which go to show that for the production of steel, hydrogen in the form of hydro-carbon is necessary. It is well known that coal gas, paraffin, and other hydro-carbons, are more efficient cementing agents than pure carbon. Dr. Percy found that the charcoal of sugar, which retained some hydrogen or hydro-carbon, readily converted iron into steel, but that the same charcoal failed to produce steel under similar circumstances, after it had been deprived of its hydro-carbon. It is well known that wood charcoal which has been several times heated in the cementing furnace, loses some of its power of cementation, and this has been attributed to the driving off of the hydro-carbon contained in the fresh charcoal. Again, it is found that when, by means of an acid, we dissolve the iron of steel or white iron away from its carbon, the residue is not simple solid carbon, but an unmistakable liquid hydro-carbon, an oil which, like other hydro-carbons, burns with a smoky flame. In this case it is possible that the hydrogen may be supplied to the carbon by the water or the acid. If so it presents an interesting case of the formation of what we usually regard as organic matter from inorganic materials. If, on the other hand, the hydro-carbon exists ready formed in the steel and the white iron, the conversion of grey iron into white iron, i. e. of graphite into this hydro-carbon, is a still more remarkable case of the same kind. It is true that the hydrogen may be detected by a direct combustion analysis, but this does not reveal the mode of its existence. * * In the case of the Bessemer flame, we have a constant supply of air to a diminishing supply of carbon, and therefore we may expect that there should occur in the white portion of the flame due to hydro-carbon a change corresponding to that which would occur in Mr. Wilkinson's photometric flame, if, instead of a constant supply of coal gas mixed with an increasing supply of air, he maintained the air in constant flow and gradually closed the gas-cock. In this case there would not only occur a gradual diminution of the brilliancy but also of the dimensions of the flame. Such is the change which takes place in the Bessemer flame towards the end of the blow, and it so far confirms the hypothesis that a considerable portion of the white flame is due to hydro-carbon. If it were due to the combustion of iron the white flame should increase towards the end of the blow, for it is then that the iron, when no longer protected by the more combustible carbon, begins to burn in a serious degree, just as I have shown that the full combustion of the carbon takes place after the bulk of the silicon has been oxidised."

PERIODICITY OF SUN-SPOTS.—The following is the substance of a communication on the periodicity and heliographic distribution of sun-spots, addressed by M. Zöllner to the *Astronomische Nachrichten* for March 2d:—"The sun-spots are slaglike by the radiation of heat on the glowing and liquid surface of the sun; the products of the cooling having again dissolved, in consequence of the disturbance of equilibrium produced by themselves in the atmosphere. When these disturbances are not only local, but generally distributed, the formation of new spots is but little favored at the times of such general motion of the atmosphere, because then the most essential conditions of the surface are wanting for a severe depression of temperature by radiation, namely, the rest and clearness of the atmosphere. But when the surface has again gradually become quiet after the dissolution of the spots, the process again recommences, and acquires in this manner a periodic character, in consequence of the mean relationships of the surface of the sun, which may be considered as attaining an average in long periods. The distribution of the spots in area must, according to this theory, be determined by the zones of greatest atmospheric clearness, which, as has been shown, generally coincide with the zones of the greatest abundance of spots.—*Nature*."

VISION UNDER WATER.—Our issue for January 21st had an extract under the above head from a *Nature* correspondent, giving directions for preparing an air-lens by the aid of which perfect vision under water may be secured. The same correspondent sends another communication to the same journal for March 16th, making some corrections, which we copy:—"Further experience has shown me that the measurements I then gave were not so accurate as they might have been. Thus, the radius of curvature of the glasses in the air-lens to form a lens with a 2-in. focus in water is not $1\frac{1}{2}$ in. as first stated, but 1 in. only. Again, I somewhat underestimated the magnifying power of the anterior lens of our eye, formed by the aqueous humor, when I set it down as a lens with a focus of 2 inches; $1\frac{1}{2}$ inch is more correct. In accordance with this, I find that for the most perfect vision under water, we require a glass lens of $\frac{3}{4}$ -in. focus in air (in place of 1 in. as formerly stated), or an air-lens formed with two segments of a hollow glass globe $1\frac{1}{2}$ in. in diameter, placed concavities outwards. Both these lenses have in water a focus $1\frac{1}{2}$ in. long. These lenses are for fresh water. Sea water having a greater refractive power than fresh water, requires for perfect vision a somewhat more convex glass-lens and a somewhat less concave air-lens. I find that an air-lens made with segments of two glass globes of the diameter of 2 inches and $1\frac{1}{4}$ inches respectively, when immersed in sea water forms a lens of $1\frac{1}{2}$ -in. focus. But I should observe that good vision under water is obtained by lenses of various magnifying powers, ranging from $1\frac{1}{2}$ to 2 inches focus; but for the distinct vision of small text-type under water, the higher magnifying power is required, and it also is the best for distant vision under water."

FOSSIL CETACEA AT ANTWERP.—The Belgian Government has carefully preserved all fossils met with during the extension of the Antwerp fortifications which has been going on for several years. *Nature* says:—"Parts of the Black and Grey Craggs proved to be a complete channel house—so abundant were the remains—and these have been quietly brought together and placed under lock and key for the last eight years. The richness of the fauna disintegrated may be judged from the fact that it is stated that eight new genera of Ziphoid Cetaceans are indicated besides sixteen new species belonging to known genera. Many of the forms are represented by far more complete portions of the skull than have hitherto been known from these beds, also portions of the trunk, limbs, and lower jaw in connection with these. Portions of the skull of the fossil Walrus, tusks of which occur in the Suffolk bone-bed and have been described as *Trichecodon*, have been obtained, as well as remains of seals. All these specimens are under study by the Vicomte du Bus, and are not open to the inspection of even professional palaeontologists. They are being carefully and freely engraved, and will soon, it may be hoped, be made known to the world."

THICKNESS OF THE SEDIMENTARY ROCKS. The *Geological Magazine* for March has an article by Mr. James Coll on the "Determination of the mean thickness of the sedimentary rocks of the globe." He remarks that it must be borne in mind that, from the continual action of denudation, the existing sedimentary rocks only represent a fraction of the whole thickness of sediments that have been deposited. Taking the denudation of the area of the Mississippi as a guide, he estimates the wearing down of the land at one foot in 6,000 years, and the matter thus removed spread over the bottom of the ocean would produce a deposit one foot thick in 14,400 years. Taking the maximum thickness of British sedimentary strata as calculated by Prof. Ramsay, namely, 72,000 feet, to represent the mean thickness of all the sedimentary rocks which ever have been formed, the author thus gets 1,036,800,000 years as the age of the stratified rocks.

The highest point ever attained by any halloon traveler, namely, seven miles, was made by Mr. James Glaisher, the English aeronaut, in an ascent made from Wolverhampton, on the 2d of September, 1862. At this height Mr. Glaisher became insensible, and Mr. Coxwell, his companion, nearly so.

CORRESPONDENCE.

Flint Creek, Montana.

[Written for the Press.]

EDS. PRESS:—In a former letter I intended to convey to your readers an idea of our location and means of access. I also stated that a small mill with imperfect machinery was then in operation under the management of Capt. Geo. Plaisted, formerly of Nevada, and that, as soon as practicable, I would forward results of the ore worked. It will be understood that this mill is only adapted (and poorly at that) to the wet process. Upon application at the office of the mill Mr. R. kindly gave me from the books the following: Whole number of tons worked, 432; Bullion acct. credited by First National Bank, \$23,483. Thus it will be seen that the ore worked averaged over \$54 per ton. This was on "second-class ores," recently two-thirds of which had heretofore been classed as "refuse," and but 80 tons of which were taken from the vein.

It has now been pretty thoroughly demonstrated that the higher grades of ore in this camp demand a different treatment. In view of this fact, Mr. R. is contemplating a new milling enterprise with machinery adapted to the wet and dry process, and in furtherance of this object, will soon pay San Francisco a short visit. Our higher grade ores are the most base and intractable. There are now some four or five mines opened in this district, all ore of this character. Beside these, there are three mines opened of comparatively free ore, the richest of which, however, cannot be saved by the wet process of working. The ore of the "Hope," "Comanche," and "Comanche Extension" is all of this character.

Brown Bros. & Co. have recently struck, in a small tunnel to the vein of "Comanche Extension," a very rich body of black, mottled coffee-colored ore, about five feet thick on their west wall, which is widening as they go in. They are now twelve feet from the west wall, and think the east, not within three or four feet yet. The ledge is very solid, has a heavy coating of a clay-like substance between the formation and quartz, some twelve inches thick, while the formation wall is smooth as if worked to a line. This I am told is an indication of permanency. The owners informed me they were willing to enter into a contract to deliver one thousand tons of this ore before the first of August, and two thousand additional by the first day of January next. Other parties are anxious to get rock worked and probably will make the same offer to any responsible party presenting themselves.

The fall of snow in the mountains during the present month exceeds that of any previous March since the country was known. It packs very close and hard, the temperature being mild, and bids fair to furnish an abundance of water for the ever thirsty miner. We feel warranted in predicting the largest product of bullion, in this Territory during the coming season that has ever been taken from the ground. With plenty of water, the placers well opened, and no sensational digging yet struck, we see no obstacle to such a result. The agricultural lands are rapidly settling up, and at least one-third more seed will be planted and sown this spring than in any previous season.

Philippsburg, M. T., March 22, 1871.

The Eclipse M. Co., Inyo County, Cal.

[Written for the Press.]

EDS. PRESS:—On the morning of the 3d inst. in company with one of the editors of the *Inyo Independent*, I took a trip to the Eclipse Mining Co.'s works, to be present at the starting of steam through their new engine. The works, as contemplated by this company, when completed, will be the largest mining enterprise this side of Virginia.

The Mill

Is not yet ready for crushing ore, but under the able management of Capt. Henry Tregellas, (a mining engineer of experience in England, Australia, and California,) is assuming shape rapidly. The machinery consists of a 60-horse power engine, a queer looking 6-stamp battery, an alligator rock-breaker, and eight Wheeler amalgamating

pans, with a new style of shaking table. In fact the whole machinery is of a different pattern, from anything I have ever seen used in gold mining, or gold extraction rather. This machinery is from the works of Harvey & Co., Haylo, Cornwall. But from what I could glean from Capt. Tregellas, he prefers the old style of California stamp batteries. He is now cutting a ditch of nearly five miles in length, to take water from the Owen's River to supply and run a water mill of 42 stamps, which, if successful, will be increased to 100 stamps. The present steam mill will be put in operation and kept running to assist in paying the expenses of building the water mill and other improvements, to be mentioned further on in this paper.

This company is an English Mining Co., with their head quarters in London, England. They possess mines in several portions of Brazil, Australia and England, and have set apart \$500,000 of their capital to carry out this speculation in Owen's River Valley. Their mill is situated on the bank of the Owen's River, about twelve miles south of Independence.

The Mine

Is in the foot-hills of the Inyo range, and about four miles from the present mill, but will be at least a half-mile nearer the new water mill, from which a tramway 3½ miles in length will be laid on such a grade that the cars will run from the dump to the mill by gravitation, and be transported back by mule or locomotive power. The main (or Haman shaft, as it is called by the miners,) is 300 feet deep, and is run upon the ledge, which has an incline of about 35°, with double tramway worked by a whim at top.

At the depth of 100 feet, there is an adit level with turn table about 150 feet in length. At the further distance of 60 feet there is another adit of nearly 100 feet, where a "dyke," as technically termed by the miners, has formed and cut the ledge. Upon this "dyke" the miners had run 60 feet in hopes of re-finding the ledge, and, while I was there, found in the breast vein matter of good appearance.

At the depth of 220 feet there is still another adit, 200 feet in length, at the end of which the miners were making a rise to intersect the north shaft (an old working), and were within a few feet of intersection. This rise is for the purpose of getting air at the foot of the main shaft, 300 feet below; the air was pure, although rather warm. At 185 feet deep a cross-cut was made upon another "dyke," at the distance of 35 feet from which a large amount of rich galena and silver-bearing rock was extracted.

Transportation.

The rock arriving at the top of the mine is run off on a tramway about 100 feet and dumped down a small cañon, and falls 500 feet perpendicularly; it is taken into a car again, run along 200 feet or less, and again dumped, falling say 50 feet more; again it is loaded into cars, and now sent down a double-track incline tramway, 650 feet in length, worked by a friction brake at the head, the loaded car drawing up the empty one by means of a wire-rope. Upon arriving at the bottom, by a simple device the loaded car discharges its cargo into a chute, from which it is taken into wagons and hauled to the mill.

To dispense with handling and re-handling the ore in this manner, Capt. T. is projecting a tramway alongside of the mountain, a distance of 1,500 feet, from which point it can be dumped directly to the train of cars designed to run to the mill.

Furnace—Price—Working Force.

The company have also started to erect a smelting furnace similar to those in use in other parts of the country, for the purpose of smelting the galena and silver-bearing products.

This company purchased the mine about one year ago from the Union Mill and Mining Company (whose mill was burned by the Indians in 1864), for the sum of \$150,000. They are now refitting the engine of the old mill, to be placed at the mouth of the mine for hoisting, and for power for the blast furnace. There are now engaged in the mine 16 men, at the mill 24, making in all 40 men employed. The reason of the smallness of the force is that they have at least 1,000 tons of milling rock upon the dumps, and at least 100 tons of smelting ore lying in and around the mine. The Manager prefers to sink and run levels, thereby developing the mine, rather than to stoop; as he rightly says, "when we want it we know where it is." I could give your readers much other detail, but I am afraid I have drawn already a little too long a letter for your columns.

Crowquill.

Independence, Inyo Co., Cal.

Transcontinental Traffic.

BY J. RICHARDS, M. E.

[Written for the Press.]

The interchange of the products of nature and industry from one part of the world to another, has in all ages monopolized a large share of the best talent in civilized countries. In fact, the amount of commerce of any people is a reliable exponent of their civilization. The lines of commerce and trade are, no doubt, to some extent, established by circumstances, or by laws that were not considered nor understood; and it is only in late years, and since steam transit has been known, that commerce has become a science, in the sense of being governed by laws that can in advance be ascertained, and from reliable deductions made as to its future stability and extent.

History shows the influence of international trade—shows how the trade of the East has in successive ages built the great commercial centres of the world. Civilization trading with barbarism, gave the products of educated skill for gold without a regard for the law of equivalent values that now regulates trade. Such commerce built Rouen, Constantinople, Paris, and London. But at the present day, with the widespread geographical knowledge that exists, with our means of trade and communication, no chance exists for speculative commerce. The merit of a balance between supply and demand cannot long exist without being met by such trade as produces an equivalent. If the fur skins of Hudson Bay are wanting in China, they will soon find their way there.

Now no want can long exist without finding something to satisfy it. Like mechanics, our manufactures and commerce have bowed to science and knowledge; and the most daring ventures of capital and life are continually being made based upon deductions that seldom fail. A dye is wanted; it has a vegetable base. Science points out the latitude and climatic conditions that favor its growth. An expedition proves its existence at the point indicated; and we find a colony sent out from New York to settle the country, and collect it in Lower California. A short line of communication from the eastern to the western world is discovered across our continent. There is a want of means of transit for travel and valuable merchandise. Millions of dollars are expended in building a railroad across the country. This road is carefully watched; its cost, earnings, and its inducements are weighed; and as soon as careful reasoning shows a paying necessity for another, it will be built.

The reasonings on which great commercial enterprises are based, are rarely, in all their details, given to the world. A degree of secrecy is maintained, enough only being divulged to inspire the confidence needed to command the capital necessary to carry them out. It is true that the advantages to accrue to the public and stockholders in such ventures, are heralded and painted in glowing colors throughout the land, supported by spurious reasoning and such sophistry as appeal to the understanding of those who are incapable of following out the deeper conclusions of the originators of the scheme. But below and beyond this, is laid a substratum of deductions founded on the laws of trade and intercourse, that would be both difficult to explain and to understand in a popular way.

One of the great advantages of a transcontinental railway set forth and yet maintained, is that of an exchange of products between the Pacific and Atlantic States, a kind of home trade that will enrich our country out of exchange of its own products. Such a mission for our great railway is not supported by the laws that govern trade, nor by the conditions that exist at either end of its route. That there will be a large commerce for a time in valuable products of light weight, is possible; but such a commerce is contingent upon a train of present circumstances and conditions that will soon pass away, depending entirely upon an equilibrium between the cost and elements of production in the two sections. "Carrying coals to Newcastle" is an adage illustrating the absurdity of unnatural commerce, that has for a century been quoted to illustrate this fact; and the idea of carrying by rail, or even by water, the manufactured products from our Atlantic States to the Pacific coast, will soon be very much like "carrying coals to Newcastle," and our generation may yet see a clamor for tariff on Pacific products.

To return to the former proposition about the laws of commerce, it is safe to assume that there has never been much gain in trading between countries when there is a balance of civilization. It involves a nice distinction and constant rule as to values, that precludes speculation and balances the exchange of money. To trade with less civilized people we sell goods for gold. If we trade with those more civilized we exchange gold for what their superior intelligence has produced. This proposition, of course, applies more particularly to manufactured products,—about the only imports that come into our country which has been endowed by nature with nearly everything wanted; and it is only a want of balance in skill and cheap labor that creates a demand for imports.

Granting these premises, it is easy to see that commerce between the Atlantic and Pacific States can never exist to any great degree, nor be a source of gain to either section of country. The business of railways will be to carry passengers and mail,—quite enough, no doubt, to furnish business for many lines in the future. But merchandise must obey the imperative laws of trade that are not changed by the schemes of men and corporations.

The elements of manufacturing are: material, food, and skill. The material must be local, furnished by nature when naked. A high degree of skill, concentrated at one point and surrounded by favorable conditions for some peculiar branch of manufacturing, may for a time draw material from distant sources, but with reference to iron, coal, and wood, the proposition can be maintained. Food, which more than anything else governs the cost of labor, must also be local; it must be produced where it is consumed. Skill is the portable element in manufacturing. Man does but little now but direct natural forces in the manipulations of the work shop, and the small degree of skill needed with our modern facilities for education, dispels all idea of monopolies based upon special skill. One man may, with labor of ordinary intelligence at his command, found and conduct a large business with which he is conversant. Skill in manufactures is like "leaven in the loaf,"—it soon pervades a community.

There was a time—in fact we are just emerging from the period in which we ignored the idea of fixed laws to govern mechanical manipulations. The Sheffield steel makers furnish steel to the world, because the laws of metallurgy were not understood, and its manufacture was a discovery—a secret. A greater knowledge of metallurgy has developed in this country, within the short period of fifteen years, a steel manufacturing interest that has almost stopped importation and supplied the wants of a population of thirty millions of people. Skill is a concentrated element in manufactures,—the only essential that can be transplanted and flourish in any country that furnishes enough natural intelligence to sustain it.

In speculating as to the future of the Pacific coast and its relations with the Atlantic States, we have but to call to our aid the recognized laws of trade, and form an equation in which the two sides will represent the relative resources of the two sections:

1st. The natural resources of the countries, consisting of fuel, food, iron, coal, wood, etc., with climatic conditions.

2d. First cost of natural products and raw materials.

3d. Population, its character and probable "hew," with the kind of public that will control it in matters of popular interest.

4th. The relations to a market and to an export trade in the future as well as to local wants.

With correct statistics on these points, and a careful consideration of the physical geography of the Pacific coast, it will not be difficult to arrive at a conclusion as to the extent of transcontinental trade, in manufactured products at least.

[To be continued.]

Banner District, San Diego County.

[Written for the Press.]

EDS. PRESS:—I send you a few items of news from this district, thinking they may be of some interest to the readers of the Press.

McMechan's mill has been running on Redman rock, which has paid about \$60 per ton. Last week same mill crushed 25 tons of Lady's Leg rock, or, as it is now called, Kentuck, averaging \$57 per ton. Six miles south from here is King's new discovery. They are pounding out four ounces per day with a hand mortar. In this discovery there are three ledges running parallel, all included within ten feet. McKean's mill has been running on Warlock rock, results not known. Madden, too, had 25 tons of rock crushed at McMechan's mill, which cleaned up \$1,500.

Bill Moran had six tons crushed from the Corral mine, giving \$300 gross. The Antelope Co. has a five-stamp mill on the way, which will arrive in a few days. It is rumored that the Chapparral mine has been sold to capitalists from San Francisco, for \$15,000. The weather is beautiful, and the prospects good for mining throughout the district.

BANNER MINES.

Banner City, April 2, 1871.

FISH IN DEEP WATER.—A curious experiment was performed in France, recently, to ascertain whether fish could live in great depths of water. The fish were placed in vessels of water made to sustain 400 atmospheres, under which they lived and preserved their health. It is, therefore, concluded that fishes may penetrate to very great depths in the ocean with impunity, as a pressure of 400 atmospheres corresponds to a depth of 13,600 feet, or about two miles and a half.

THERE are now about 250 postmistresses in the country, and the number rapidly increasing.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

LARGE BODY OF ORE.—*Miner*, April 8th: The Monitor Tunnel No. 3 has just passed through probably the largest body of good ore ever opened on this coast. The vein is a high grade for twenty feet in width and judging from the croppings several hundred feet long, extending across the M. & N. and Silver Glance properties. Much of this will assay three to five hundred dollars per ton.

MONITOR MILL.—Lumber is being delivered on the ground, and the carpenters will commence work on Monday. Three arrived from Illinois on Wednesday.

GLOBE.—Another vein was cut in the tunnel early this week, containing according to different assays, 15 to 50 dollars in gold and silver to the ton.

SHIPMENT OF SULPHURETS.—*Chronicle*, 8: About three tons of the concentrated ore of the Schenectady Co., were this week shipped to San Francisco. The mine continues to look well, and much fine ore is coming out.

AMADOR COUNTY.

KENNEDY.—*Dispatch*, April 15th: We understand that the company have abandoned the idea of digging a new ditch, as they have perfected arrangements for supplying their mill with water immediately by the purchase of an old ditch belonging to Mr. Morgan, of the Oneida. The mill will commence crushing rock Monday or Tuesday.

CALAVERAS COUNTY.

ITEMS.—*Chronicle*, 15th: C. W. Smith of Grass Valley is keeping an eye on his quartz interests in Lower Rich Gulch, and hopes to commence work again soon... The big reservoir on Negro hill is undergoing its cleansing. The sediment that has accumulated during the year is being hydrauliced out. It will take two weeks longer.

SAN ANDREAS.—A letter from the Supt., of date March 12th, says of the Union Mine: "A new horse-power has just been finished with hoisting gear. A Beaux & Guidon pan has been added. The shaft, 165 feet deep, has been supplied with new timbers and lagging. The drift at depth of 105 feet is in 12 feet. The vein fills the whole width of the drift, 7 feet, and is all pay quartz, yielding \$20 per ton. There is 300 tons quartz on dump."

EL DORADO COUNTY.

THE HARMON.—*Placerville Democrat*, April 15th: Mr. Ellsworth took charge three weeks since. He has cleared the mine of water, overhauled the mill, partly re-timbered and fixed the old shaft so as to work the pump in it, and has a new working shaft, to the north of the old works, now down to the depth of fifty feet on the ledge, and has had the mill running for the past week.

INYO COUNTY.

CERRO GORDO.—*Cor. of Independent* April 8th: V. Beaudry's furnace since October last, has turned out 7,222 bars of bullion weighing 301 tons, of an average value of \$250 per ton, in the aggregate \$75,250. Running time of the furnace 72 days, or an average of 100 bars per day. The lead in the bullion considerably more than pays the freight to San Francisco. M. W. Belshaw's furnace has produced about the same quantity per day during the same period as Mr. Beaudry's hut has been in more constant operation.

ECLIPSE MILL.—The engine was started on April 3d for the first time. It is of English build, 60-horse power, 6 stamps. The mine has a 310-foot shaft on the lode all the way. The amount of ore in sight is prodigious. Average width of ledge seven feet. The Union Co. extracted from the 160-foot level 500 tons of ore, which worked at their mill \$26 per ton, the tailings assaying \$100 per ton, all gold. A lot of 50 tons netted \$33.50 per ton—the whole unassorted. Fine gold can be seen in most of the rock, while the other class of ore—the silver—will average \$250 assay per ton. Certain ones have made out that this ore was worth over \$2,000 per ton "average," the very finest specimens being picked to obtain said "average." The cost of reduction even by the present cumbersome and costly arrangements can not exceed \$14 per ton. A smelting furnace is to be built. A railroad, 24-inch gauge, 3½ miles long, will take the ore from the shaft to the mill of 100 stamps which is to be erected.

KEARSARGE.—*Gold Hill News*, April 12th:

John Rooney, foreman, arrived in Gold Hill this morning direct from the mine. Mr. R. informs us that Thompson, the architect, of Virginia City, had a force of men at work putting up the tramway of three thousand feet on the mine, and that everything was going on vigorously in overhauling the mill, mine, etc.

KERN COUNTY.

HAVILAH.—*Cor. of Visalia Delta*, April 13th: Our mining interests are looking well just now. Mr. Burke, Supt. of the "Joe Walker," writes from the city, that the new pipes will be shipped on the 5th; and we are in expectation of hearing the stamps on the 1st of May crushing better rock than ever. This mine has paid in the past, for a hundred successive days, \$1,000 per day. The McKeadney mill is running regularly on ore which will pay \$50 per ton. The Howe is running on custom rock. The St John & Co., at Sageland, is running day and night and paying handsomely. L'Esperanza, in Kelso Valley, is about to start up again. They have several hundred tons of quartz out. Sol. Carter has sold out his interest to W. Sungate and C. Cusick for \$2,000, we are informed.

NEVADA COUNTY.

SPLENDID.—*Grass Valley Union*, April 13th: Yesterday the Town Talk gravel mine showed very rich in gold. Mr. Walker tried a pan of dirt from the breast of gravel and got \$17.50. The Town Talk is nearly east from Grass Valley, and is supposed to be on the Alta Hill old river bed.

MINING BREVITIES.—Same of 16th: On New York Hill, and from Rocky Bar ledge a company are taking out rock paying \$40 per ton. The Rocky Bar is one of the old time rich ledges, and now gives promise of doing better than ever... Webster Co. paid off all its hands yesterday, and the money came from the mine... The Baltic Gravel Co. finished yesterday after a two weeks' run, and cleaning up only seven boxes of the sluice, the result was \$1,100. The number of men employed is seven. The Baltic claims are east of the Webster, and on the same lead. The Co. have still a reserve in the lower boxes of their flume.

EUREKA MINE.—Same of 18th: The Eureka had a clean up Saturday. For the twelve days including, the yield is \$30,800. Some of this comes from sulphurets, but not more than \$800.

WASHINGTON TOWNSHIP.—*Transcript*, 14th: Road Commissioner Cleveland, recently returned from a trip, informs us that the miners are all at work.

BLUE TENT.—Five companies are at work with full heads of water. They have fine prospects so long as the water will hold out.

LITTLE YORK.—*Gazette*, 11th: We learn that the mining prospects are cheering. There is plenty of water; everybody is hard at work, and all are sanguine.

GRANITEVILLE.—*Cor. of same*, 14th: The Erie Mine, leased by Veach and McCurdy for two years, is paying large dividends, and it is estimated that they will clear \$100,000 on the operation before the lease expires. The owners, Bull & Co. of San Francisco, had a late offer of \$112,000 for the mine but would not accept it. The Ansho, a mile from the Erie, is a large, well defined ledge, and shows plenty of free gold. I understand that there is a San Francisco company negotiating for its purchase. The Washington, on the line of the Erie, and between it and the Ansho, is six feet wide, and shows free gold. The owners are workmen without means, and I think it can be bought very cheap. It is owned by Becker, Johnson & Co. The above ledges are all in slate and are on Irwin's ridge. The Black & Irwin mine has been worked all winter, and is paying large dividends. They employ 25 men. The Birchville has not been worked, the owners being unable to get their machinery moved before the snow set in. This mine is at South Fork. The Jim mine Co. had also to suspend work during the winter. There are several ledges in the vicinity of South Fork which will be worked in the coming season. I am informed that Wm. Watt of the Eureka mine, intends to erect machinery on the Sweet ledge. Gravel claims are being fitted up in all directions, and the claims worked are paying well.

PLACER COUNTY.

SHIPLEY MINE.—*Herald*, April 15: We are told that the Shipley has changed ownership, and is now mainly owned by the same men that own the St Patrick. There was 1,700 feet on the Shipley and Trouble ledges belonged to McFadden and Sears, with the new 10-stamp mill. To this the purchasers have added 1,000 feet of the main Shipley ledge bought from Baptist Stinger, and 1,000 feet on the same bought of Thatcher Ross which would make 3,700 feet in all. About the center of this 3,700

feet Stinger had sunk 70 feet, and there found the ledge five to seven feet thick, and it had paid from the top down, at various millcrushings from \$22 to \$30 per ton.

SPECIMEN.—The finest gold quartz specimen we ever saw was shown us yesterday by Wm. G. Greene. It is a slab of solid quartz one foot long, averaging three inches wide, and two inches thick, weighing 8 pounds. We should say that fully one-fourth of the weight was pure bright gold. It was taken from Mr. Greene's mine two miles from here, at a depth of 65 feet, and from a point in a drift 42 feet from the main shaft.

PLUMAS COUNTY.

MORE WATER AND MORE DUST.—*Quincy National*, April 8th: The late rains increased the water and the happiness of the miners in like proportion. They are all hard at work and in high spirits.

GOOD RESULTS.—Ray & Conklin of Argentine, recently made a clean-up after running a large quantity of rock through their mill. The result was satisfactory, and work in that section is prosecuted with renewed energy.

FLOURISHING.—The Greenville Co., (Bidwell & Co.) have purchased the Pennsylvania mill which with the Lone Star of 10 stamps, will make twenty-two stamps. The mine is now opened 220 feet deep, a strong, well defined lode ten to fourteen feet wide.

GREENVILLE.—*Cor. of same*: Messrs. Lawrence & Emmons are re-opening the Bullion mine, with every prospect of making it "pan out" profitably.

SAN BERNARDINO COUNTY.

A Los Angeles telegram of April 12th says: A very rich discovery of silver ore has been made in the Ord district, sixty miles southeast of San Bernardino, and assays of surface rock sent to San Francisco go as high as \$377 per ton. A large party will immediately put out to open the mine thoroughly and send several tons of rock to be worked. The lead is eight feet wide and extends two miles.

SAN DIEGO COUNTY.

CUYAMACA GRANT.—*Union*, April 13th: A letter from Julian City informs us that a meeting of the miners and settlers was held on the 2d, to consider the progress of the pending case concerning the survey. A committee was appointed, and the meeting adjourned to the 9th.

BULLION.—Pauly & Sons forwarded \$1,000 gold bullion, from the Julian mines, by the Wm. Huber.

ANOTHER MILL.—Same of 5th: A fine quartz mill arrived on Thursday, for the Antelope Co. It will be erected at the claim on San Felipe Creek, three miles from Julian. The Antelope commenced working ore in an arastra last November, and since the first of January have cleared enough to pay for the mill and set it in motion. The week previous to ordering the mill they crushed one ton which yielded \$770.

SIERRA COUNTY.

ITEMS.—*Messenger*, April 15th:—The Shamrock mine, at Fir Cap, is being worked with great vigor... It is reported that Jas. Galloway recently found a nugget worth \$300 in the point below the town... More snow has fallen than for 18 years. So say the miners... Mr. Silverman is still Supt. of the Primrose and two other mines belonging to the Co. He will commence crushing about May 1st.

NORTH SAN JUAN.—*Cor. of same*: Every ravine that has pay dirt is being prospected and in many places with flattering results. A short time ago a high flume was blown down that supplied the Bed Rock and Kenebeck Gravel Mining Companies with water, and three weeks' work was necessary before it was repaired.

RICH STRIKE.—*Democrat*, 13th: Some parties working in Jim Crow Cañon brought into town, Saturday night, \$369 worth of gold dust, the result of one week's work. One piece among the lot weighed 12½ ounces.

SHASTA COUNTY.

NUGGET.—*Courier*, 15th: Last week Robert Pitt, of Portuguese Flat, found a gold nugget in his claim which weighed \$70. Pitt says it is nothing unusual to find pieces worth from \$10 to \$30.

TRINITY COUNTY.

DOUGLAS CITY.—*Journal*, April 15th: The ditch to Whetstone har was seriously damaged by the flood. The upper part was washed bodily away. Lange, Dixon & Co. are at work in their Dutton's creek claim. The ground is very hard, so that although they have 200 feet pressure on the hydraulic it cuts their bank hut slowly. We learn that they propose to run tunnels and blast to some extent. The river rose so rapidly during the flood that Chas. Tourout lost eight boxes of the flume on his claim at Fillibuster flat, with the

blocks, quicksilver, amalgam and undercurrent. Crickard & Theodor are doing well in their Union Hill claim. Not having fall sufficient to use a hydraulic to good advantage, they work this season by "gouges." The gold is fine and yields from \$6 to \$8 a day to the hand, six men working.

INDIAN CREEK.—We learn that the miners are all at work with plenty of water, and prospects in that neighborhood are flattering. Silcox is still crushing rock from his ledge, and expects to make a clean-up next week.

LOWER TRINITY.—W. S. Norman, on Big flat, is said to be doing well. On Ssw-mill flat, Thos. Price continues to take out dust in large quantities. At Cox's bar, everybody is at work, they have plenty of water and are doing well. Thos. Cox & Co., in the old Smith claim, have splendid prospects. Wm. McCollum & Co., on the upper end, are reported as having struck good pay. In the neighborhood of Taylor's flat, Ben. Wattles & Barnum, R. B. Martin and Alex. Pelletreau are cited as having extra good claims, while all the other miners are doing well.

TUOLUMNE COUNTY.

CONDIT CLAIM.—*Sonora Democrat*, April 15th: Work is constantly carried on in the claim with fair success. The fine brick store occupied so many years by Condit has been taken down with the store room next south of it, and now the brick building next north is being taken down for the purpose of mining the ground under it.

Nevada.

COPE DISTRICT.

ITEMS.—*Owyhee Avalanche*, April 8th: The Argenta Co. have finished sinking, and are drifting for the ledge... The Robert Emmet mine continues to improve, and work is prosecuted with vigor... Many Bull Run miners, who have been wintering elsewhere, are preparing to return.

ELY DISTRICT.

BULLION SHIPPED.—*Record*, April 9th: Wells, Fargo & Co. shipped from their office in Pioche, on the 6th and 8th instants, bullion valued at \$19,345.50.

THE SITUATION.—Same of 13th: Thousands of tons of rich ore are on the dumps; and, although large quantities are shipped for crushing to Hamilton and Silver Park, and fifty-five stamps are running day and night in Meadow Valley—12 miles distant—still the cry comes up:—"Give us more mills!"

ORE FOR THE PARK.—The ore extracted from the Alexander by Charley Noakes & Co., is being shipped to Ferguson's mill at Silver Park. A former crushing of this ore gave satisfaction to all interested. This is very good for the investment of six weeks labor—say \$50 a day or more.

EUREKA DISTRICT.

HOME TICKET MINE.—*Sentinel*, April 15: It is expected that the new furnace will be turning out bullion within 40 days exclusively from Home Ticket ore. The mine has never looked so well as now. The ore can be very readily extracted, and cheaply mined. The average of seven assays gave \$111.54 per ton.

EUREKA CONSOLIDATED.—The furnaces made in March, 246 tons of base bullion. The two new furnaces will be running a few days and will smelt 40 tons per day, and the old ones 30 to 35 tons.

PHOENIX COMPANY.—A new strike in the Lexington, and the mine looks better than at any previous time. In the Empire, work is going on steadily. The Adams & Farren is carrying the same body of ore, hut galena has taken the place of carbonates in the bottom of the shaft.

HUMBOLDT.

BUTTE MILL, RYE PATCH.—*Silver State*, April 15th: We learn that ten days since the Mill after a cessation of operations for a month, resumed, with an increase of five stamps—making ten. The furnace, of Akin's patent, was overhauled and improvements made. The works are said to fully reach anticipations.

SHAKESPEARE MINE.—Mr. Hanna finds in his new shaft at the depth of eight feet, two veins of quartz showing abundantly in sulphurets.

RAILROAD DISTRICT.—*Elko Independent*, April 15th: Dr. Kinkead has hounded the Lone and True mines to a company of New York capitalists, on four months' time for \$40,000, who will proceed at once to develop them.

GALENA.—*Cor. of Register*, April 15th: Avalanche mine is idle for want of machinery. Shiloh is in the same fix. The Butte Co. are putting up a mill which will be running by June 1st. The Copper Co. have 30 men at work and are taking out much ore. Cosmopolitan will start in again. Black Hawk is giving out fine ore.

STRIKE.—We learn that R. McBeth has struck an extraordinary vein of ore in the Buena Vista mine. It is said to be equal in richness to anything yet found in Galena district.

WASHOE.
YELLOW JACKET.—*Enterprise*, April 16: This Co. have extracted an average of 180 tons per day during the past month, the average yield of which has been \$35 per ton, amounting to \$6,300 per day. This ore is principally from between the 800 and 1,000-foot levels. The mine is looking well throughout.

BELCHER.—The Co. are taking out no ore at present, being engaged in cleaning out and repairing their main drift on the 830-foot level.

OPHIR.—Since our last, great progress has been made in the works for the development of this mine. The up-rise from the south drift has reached the height of 300 feet, where a cross-cut is being made to the west through porphyry. There are indications that ore will be found in the north mine.

SUCCESS.—This Co. are taking out 35 tons per day, sufficient to keep their mill running. The mine is looking well. A connection is being made between their main tunnel and the surface to secure ventilation to enable them to work the White lead.

CHOWN POINT.—During the week 1,150 tons of ore have been sent to the mills. The average yield of the ore milled was \$50 per ton, which would give a monthly yield of \$230,000. The mine is looking well throughout.

SAVAGE.—About 125 tons of ore of fair quality are daily extracted. Three cross-cuts are being run on the tenth level, which have not yet reached the pay ore.

HALE AND NORCROSS.—The extraction of ore continues in the usual quantities. The quality is unchanged.

CONSOLIDATED VIRGINIA.—The drift northward from the main west drift is in 250 feet, leaving 250 feet yet to go to reach the north line.

OVERMAN.—Taking out 40 tons per day from the 226-foot level. This ore goes out through a tunnel. They are only running the pump at their hoisting works to keep down the water. No prospecting is being done. The receipts for March amounted to \$20,100.

CHOLLAR-POTOSI.—During the week this Co. have extracted 1,800 tons of ore and forwarded to mills 1,940 tons, the average yield of which has been \$74.22 per ton. The amount of bullion forwarded was \$55,514. The mine is looking well throughout.

IMPERIAL EMPIRE.—The Co. is still drifting and cross-cutting on the 1,300-foot level. Sinking upon the main shaft will shortly be resumed.

CALEDONIA.—The usual ore is being extracted. The ore-breasts are looking well throughout.

SIERRA NEVADA.—The mine and mill and the old Sacramento and Meredith mine and mill are shut down under an injunction obtained by the Kenosha Co.

SUTRO TUNNEL.—The tunnel is now in 1,915 feet. The ground is of such a character as to require timbering. There is no water coming in at the face.

SEOREGATED BELCHER.—Work has been delayed by the breaking of cables. All is in order again, and considerable prospecting is being done.

GOULD AND CURRY.—This mine is not yielding much ore, and none at all except from the old upper workings. New foundations for the hoisting reels have been completed, and the shaft is to be re-timbered 400 feet, for further prospecting at the lower levels.

SILVER.—During March, 1870, Wells, Fargo & Co. shipped 36,780 pounds of bullion. In March, 1871, they shipped 38,818 pounds.

The Gold Hill *News* of April 11th says that Dall's mill, Washoe Valley, last week cleaned up \$14,000 from a run of 17 days on tailings and slimes.

WHITE PINE.

REVIEW.—*News*, April 15th: Work upon the tramway has been delayed by the storms. The grading for the site for the engine to raise ore from the English Co.'s mines is about completed, and the engine will soon arrive. With the advent of the next month, everything in connection with this enterprise will be in complete working order, and the ores will be conveyed to their mill (about two miles) at a cost of about fifty cents per ton.

Several new discoveries have been made during the week below the Eberhardt, on the line of the tramway.

The Silver Wave is milling the usual amount of ore, the last lot of which pulped \$13 per ton. Two hundred and fifty tons

of Virginia ore, worked during the last quarter, averaged \$60 per ton.

The recent discovery of a mine of free ore on White Pine Mountain, was unexpected; a strong impetus will be given to prospecting in that direction. Taken altogether, the prospects of our district are materially brightening.

The hullion shipment for the week was 13 bars, valued at \$16,810.37.

ITEMS.—New shaft in disputed ground near the Eberhardt is down 65 feet. The force in the other mines of the company is rather keeping watch than working, while the weather is unfavorable to the completion of the tramway.... South Aurora keeps 90 men at work.... The ore in Ward Beecher Consolidated improves. It is no doubt the regular Ward Beecher ore.... Original Hidden Treasure shows high grade ore all through the shaft from the lower level.... Silver Ware ore pulped \$113 at Big Smoky mill.... In the Virginia every man takes out one ton of rich ore per day.... Superintendent of the General Lee has returned from below, and will begin work Monday with a full force.... Narrow Gauge, on White Pine Mountain, in the midst of hase metal, is the first discovery of free ore on the mountain. Assays range from \$300 to \$435 per ton.

Arizona.

BRADSHAW.—Prescott *Miner*, April 8th: Parties coming to town for tools, etc., bring good news and rich rock. Brooks & Hinkle had sunk a shaft 20 feet, on the Lion lode, at which depth the pay streak was over seven feet thick. Water had commenced to seep in at the bottom.... Moreland & Co. were sinking and drifting on Tiger discovery, and had a rich rock above, below and on every side.... T. H. Head was sinking on his extension of the Tiger. He was down 18 feet, and had a good ledge.... Aleck Harris and partners were hard at work on their portion of the Tiger tunneling.... Work upon the Eclipse, Congar, Badger, and other lodes in the "Eclipse belt" was being prosecuted, and a great deal of rich rock was being hoisted to the surface.... The owners of gold ledges—Hunter, Del Pasco, Espinosa, etc.,—were making them shell out.... The placer miners in ravines leading from the Del Pasco, were packing the gravel 300 yards to water, panning and rocking it, and making from \$5 to \$15 per day.

HASSAYAMPA.—The Davis is the only ledge upon which any work is now being done. When Mr. Davis left for town, 40 tons of good ore were out, and the ledge was looking splendid. All the placer miners are doing well.

Big Bug mill was running on good ore. In Wickenburg, the Vulture Co.'s 40-stamper was running on rich rock.

Idaho.

ITEMS.—*Avalanche*, April 8th: Chas. Peck has discovered another rich gold-bearing quartz ledge, running from Web-foot gulch eastward across War Eagle. It has been named the "Udola and Tahula Peck.".... The Mahogany case was adjourned till nine o'clock this morning.... The water has been turned into the Florida mountain ditch, and Sommercamp & Co., are preparing for placer mining.... Sanfils & Co. are down 70 feet on the Illinois Central and drifting both north and south of the shaft.... Wells, Fargo & Co., shipped from here this week eleven bars of bullion, valued at \$28,218.80.... The Oro Fino mine is said to be looking well and yielding rich ore.

Montana.

STERLING.—*Montanian*, April 6th: Mr. Cope's shaft on the Pony lode is 325 feet deep, and last week he was forced to suspend operations on account of water coming into the works. He has worked three eight-hour shifts of men the entire winter. He was loth to suspend just as he was (as he thinks) getting to a depth at which the ledge would concentrate and open out into rich ore; but the machinery was insufficient to keep the shaft clear. He will try again in the dry season. Col. Peck reports Snyder's mill running on Red Bluff ore, with good returns. Malory & Lown are preparing to put a force of men on their rich claim on the Red Bluff lode. Mr. Merk is preparing his mill for work and sinking on the Boaz lode.

New Mexico.

The Santa Fé *Post* of April 8th says:—We understand that the Harpending Co., which claimed a large interest in the Ralston mines, has ceased operations and that all its employes have left. The Willison Silver Mining Co., composed of citizens of our Territory will, however, continue operations.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., April 20.

The stock market has been irregular this week with a fair demand. Amador has sold for \$360, and \$380 and \$390. Eureka was quoted at \$81 to \$82½.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock:

April 13. Highest. Lowest. Apr. 20. Adv. Dec.			
Alpha.....	11	10	10
Belcher.....	57	60	57
Chollar-Potosi.....	75	85	77
Crown Point.....	153	175	163
Eureka.....	11	10	10
Golden Chariot.....	38	35	35
Hale and Curry.....	54	63	56
Hale and Norcross.....	65	71	65
Ida Elmore.....	14	15	14
Imperial.....	35	35	25
Kentucky.....	77	90	85
Mosquito Valley.....	18	18	16
Ophir.....	15	15	9
Orig. Hid. Treas.....	9	9	9
Overman.....	6	6	4
Savage.....	65	65	41
Sierra Nevada.....	15	16	15
Yellow Jacket.....	67	68	61

Latest Prices.

(S. F. Stock and Exchange Board.)

BID. ASKED.		BID. ASKED.	
Alpha Cons.....	9 10	Ida Elmore.....	25 26
Amador.....	—	Imperial.....	25 26
Belcher.....	57 58	Imperial Valley.....	15 16
Chollar-Potosi.....	75 79	Meadow Valley.....	8 8½
Crown Point.....	166 170	Orig. Hid. Treas.....	8 9
Eureka Cons.....	10½ 10½	Overman.....	33 34
Golden Chariot.....	—	Savage.....	44 44½
Gould & Curry.....	54 55	Sierra Nevada.....	15½ 16
Hale & Norcross.....	64½ 65	Yellow Jacket.....	63 63½

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	DELINQUENT, OF SALE.
Alpha Cons., G. H. Mar. 1, \$1.....	May 17	June 4	Apr. 14
Belcher, H. H., Apr. 14, \$1.....	May 17	June 4	Apr. 14
Chollar-Potosi, H. H., Apr. 14, \$1.....	May 17	June 4	Apr. 14
Crown Point, H. H., Apr. 14, \$1.....	May 17	June 4	Apr. 14
Eureka Cons., G. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Golden Chariot, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Hale & Curry, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Hale & Norcross, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Ida Elmore, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Imperial, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Kentucky, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Mosquito Valley, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Ophir, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Orig. Hid. Treas., H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Overman, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Savage, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Sierra Nevada, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14
Yellow Jacket, H. H., Mar. 1, \$1.....	May 17	June 4	Apr. 14

MEETINGS TO BE HELD.			
Cadmus.....	Annual Meeting, April 17	Monitor and Magnet.....	Annual Meeting, April 20
New Idria.....	Annual Meeting, April 20	Noonday.....	Annual Meeting, April 24
Original, Sierra Co., Mar. 21, \$1.....	Apr. 24	Original, Sierra Co., Mar. 21, \$1.....	Apr. 24
Overman, G. H., Feb. 28, \$2.50.....	Apr. 18	Phenix, Eureka, Nev., April 13, 25c.....	May 22
Rogers, Storey Co., Nev., Feb. 13, \$1.25.....	May 20	Sierra Nevada, Va., April 17, \$2.50.....	May 22
Silver Sprout, Inyo Co., Mar. 15, \$6.25.....	May 1	Silver Sprout, Inyo Co., Mar. 15, \$6.25.....	May 1
Sw. Belcher, G. H., Mar. 21, \$3.....	Apr. 25	Tahula, Nevada, Mar. 14, \$1.....	Apr. 25
Tahula, Nevada, Mar. 14, \$1.....	Apr. 25	Tahula, Nevada, Mar. 14, \$1.....	Apr. 25
Telescope, Calaveras Co., April 11, \$3.....	June 6	Yosemite, Lander Co., Nev., Apr. 12, \$1.....	May 22

LATEST DIVIDENDS—(Within Three Months).			
Amador, \$4.....	Payable April 10	Black Diamond, ½ per ct.....	Payable Mar. 5
Chollar-Potosi, \$2.....	Payable April 7	Chollar-Potosi, \$2.....	Payable April 7
Eureka, \$2.....	Payable April 14	Eureka, \$2.....	Payable April 14
Eureka Cons., 75c.....	Payable April 20	Golden Chariot, div. \$7.....	Payable March 10
Hale & Curry, div. \$5.....	Payable April 10	Meadow Valley, div. \$5.....	Payable Feb. 9
Natoma, div. 1 per cent.....	Payable March 10	North Star, div. 1 per cent.....	Payable March 10
Redington, 1 per cent.....	Payable April 1	Sierra Nevada, div. \$1.....	Payable Jan. 15
Yellow Jacket, \$2.50.....	Payable April 10		

—Advertised in this journal

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, April 8, 1871.

IRON.			
Pig, Scotch, No. 1 (cast), per ton.....	\$33 00	@	\$34 00
Pig, American, No. 1 (cast), per ton.....	34 00	@	35 00
Pig, American, No. 2.....	32 00	@	34 00
Swedish, ordinary sizes.....	105 00	@	120 00
Common.....	72 50	@	77 50
Refined.....	77 50	@	85 00
Rods.....	82 50	@	120 00
Hoop.....	95 00	@	100 00
Scotch.....	100 00	@	140 00
Roll.....	100 00	@	125 00
Nail-rod, per lb.....	6½¢	—	—
Spring.....	7½¢	—	—
Tire.....	7½¢	@	8
STEEL.			
Bars, best cast, warranted, per lb.....	18	@	19½
Sheet, best cast.....	18	@	—
Sheet, second quality.....	15½¢	—	—
Sheet, third quality.....	13½¢	—	—
Saw-plates, circular.....	23	@	—
Double-shear, warranted.....	18	@	—
Single-shear.....	18	@	—
Montague & Co. (cast bars).....	15½¢	@	—
Machinery, round.....	11	@	13
German, best.....	12	@	—
German, good.....	12	@	—
German, single.....	9	@	—
Blister, warranted.....	14	@	—
Blister, common.....	10	@	—
Jessop & Sons', common.....	17	@	—
Double-refined.....	26½¢	—	—
Stone-ax shapes.....	26½¢	—	—
SUNDRIES.			
American Lead, per 100 lbs.....	7 50	@	8 00
German.....	7 50	@	8 00
Pipe and Sheet.....	8 50	@	9 00
Musellum and Amer. Zinc, per lb.....	9	@	9½
Antimony.....	16	@	17
Spelter.....	7	@	7½
Copper, old.....	17	@	—

San Francisco Retail Market Rates.

FRIDAY, April 21, 1871.

MISCELLANEOUS.

Butter, Cal. fr. 35	@	40	Wool Sacks, new	@	50
Picked, Cal. fr. 35	@	40	Second-hand do	@	40
do Oregon, 35	@	40	Wheat-skins, 22½¢	@	11
Money, 1¢	@	20	Potato G'y Bags, 25	@	11
Cheese, 1¢	@	20	Second-hand do	@	16
Eggs, per doz.	@	20	Doer skins, 1¢	@	22
Lard, 1¢	@	20	Sheep skins, plain, 12½¢	@	25
Sugar, cr. 7¢	@	100	Do skins, each, 25	@	65
Brown, do 10	@	12	Best, do 10	@	65
Best, do 10	@	12	Peaches, dried, 15	@	30
Sugar, Map. 10	@	35			

PRODUCE, ETC.

Codfish, dry, 6	@	12½	Barley, cut.....	15	@	50
Flour, ex. 50	@	60	Beans, cut.....	2	@	00
Superfine, do 50	@	60	Potatoes, cut.....	120	@	00
Cor. Mill, 100 3 50	@	64	Hay, 3¢ ton.....	15	@	00
Wheat, 100 8 25	@	64	Live Oak Wood, 10	@	12	00
Oats, 100 8 25	@	64				

FRUITS, VEGETABLES, ETC.

FRUITS, VEGETABLES, ETC.									
Pine Apples, 1.50	@	00	00	00	00	00	00	00	00
Bananas, 1.50	@	00	00	00	00	00	00	00	00
Cal. Walnuts, 1.50	@	00	00	00	00	00	00	00	00
Cranberries, 1.50	@	00	00	00	00	00	00	00	00
Cranberries, 0.50	@	00	00	00	00	00	00	00	00
Apples, No. 1, 1.50	@	00	00	00	00	00	00	00	00
Pears, table, 1.50	@	00	00	00	00	00	00	00	00
Oranges, 1 doz.	@	00	00	00	00	00	00	00	00
Lemons, 1 doz.	@	00	00	00	00	00	00	00	00
Figs, dried, 1 lb	@	00	00	00	00	00	00	00	00
Asparagus, wh. 12	@	00	00	00	00	00	00	00	00
Artichokes, doz.	@	00	00	00	00	00	00	00	00
Brussels sprouts, 12	@	00	00	00	00	00	00	00	00
Beets, 1 doz.	@	00	00	00	00	00	00	00	00
Potatoes, 1 doz.	@	00	00	00	00	00	00	00	00
Potatoes, sweet, 1 doz.	@	00	00	00	00	00	00	00	00
Potatoes, new, 1 doz.	@	00	00	00	00	00	00	00	00
Tomatoes, 1 doz.	@	00	00	00	00	00	00	00	00
Broccoli, 1 doz.	@	00	00	00	00	00	00	00	00
Cauliflower, 1 doz.	@	00	00	00	00	00	00	00	00
Cabbage, 1 doz.	@	00	00	00	00	00	00	00	00
Carrots, 1 doz.	@	00	00	00	00	00	00	00	00
Celery, 1 doz.	@	00	00	00	00	00	00	00	00
Cress, 1 doz.	@	00	00	00	00	00	00	00	00
Dried Herbs, 1 doz.	@	00	00	00	00	00	00	00	00
Leg Plant.....	@	00	00	00	00	00	00	00	00
Garlics.....	@	00	00	00	00	00	00	00	00
Green Corn, doz.	@	00	00	00	00	00	00	00	00
Sugar Peas, 1 doz.	@	00	00	00	00	00	00	00	00
Minces, 1 doz.	@	00	00	00	00	00	00	00	00
Mushrooms, 1 doz.	@	00	00	00	00	00	00	00	00
Okra-dried, 1 doz.	@	00	00	00	00	00	00	00	00
Okra, fresh, 1 doz.	@	00	00	00	00	00	00	00	00
Pumpkins, 1 doz.	@	00	00	00	00	00	00	00	00
Parasprings, 1 bunch	@	00	00	00	00	00	00	00	00
Rhubarb, 1 doz.	@	00	00	00	00	00	00	00	00
Radishes, 1 bunch	@	00	00	00	00	00	00	00	00
Red Peppers, 1 doz.	@	00	00	00	00	00	00	00	00
Summer Squash	@	00	00	00	00	00	00	00	00
Marrowfat, doz.	@	00	00	00	00	00	00	00	00
Hubbard, 1 doz.	@	00	00	00	00	00	00	00	00
String Beans, 1 doz.	@	00	00	00	00	00	00	00	00
Dry Lima, 1 doz.	@	00	00	00	00	00	00	00	00
Spinage, 1 bkt.	@	00	00	00	00	00	00	00	00
Salaty, 1 bunch	@	00	00	00	00	00	00	00	00
Asparagus.....	@	00	00	00	00	00	00	00	00

POULTRY, GAME, MEATS, ETC.

Chickens, apic	75	(01	Tongues, pig, ea	@	15
Turkeys, 1 doz	20	@ 25	Bacon, Cal. 1¢	@	18
Ducks, wild, p p	20	@ 25	Onions, do 1 doz	@	18
Teal, 1 doz	1 50	@ 00	Ham, Cal. 1¢	@	18
Geese, wild, each	37½	@ 00	Hams, Cross e c	@	25
From Chicago, 1 doz	30	@ 100	Choice D'f wild	@	25
Hens, each.....	75	@ 00	White, 1 doz	@	25
Snipe, 1 doz	1 25	@ 50	Salmon, 1 doz	@	10
Snipe, 1 doz	1 25	@ 50	Pickled, 1 doz	@	10
Yenison, 1 lb	1 25	@ 00	Johnnies, 1 doz	@	25
Quails, 1 doz	1 25	@ 00	Salmou, 1 doz	@	8
Pheasants, 1 doz	1 25	@ 00	Smoked, new, 10	@	12
Wild, do 1.50	1 25	@ 00	Pickled, 1 doz	@	10
Hares, each.....	40	@ 20	Rock Cod, p. b.	@	10
Rabbits, 1 doz	1 25	@ 00	Perch, s water, 10	@	12½
Squirrels, 1 pair	25	@ 00	Salmon, 1 doz	@	10
Beef, tend, 1 lb	10	@ 00	Sinets, 1 doz	@	6
Sinets, 1 doz	10	@ 00	Herring, fresh	@	8
Corned, 1 lb	10	@ 12	Sunk, 100 lbs	@	00
Shops, do 1 lb	15	@ 18	Tongues, 1 doz	@	25
Port, 1 doz	15	@ 18	Terrapin, p doz	@	00
Smoked, do 1 lb	12	@ 15	Sea Bass, p k, ea	@	20
Veal, 1 lb	15	@ 20	Sea Bass, 3 D...	@	25
Mutton chops, 12½	15	@ 20	Halibut, 1 doz	@	62
Leg, 1 lb	12½	@ 15	Oysters, 100...	@	100
Lamb, 1 lb	12½	@ 15	Chosp, 1 doz	@	00
Turkey, 1 doz	12½	@ 15	Turkey, 1 doz	@	00
			Crabs 3 doz	@	00
			Soft Shell.....	@	30
			Shrimps.....	@	10

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 4TH.

SWIVEL FOR TETHERING ANIMALS.—William Lyon, Camp Halleck, Nev.

ELECTRIC GAS-LIGHTING AND EXTINGUISHING APPARATUS.—John Vansant, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

CLOSET VALVE.—A. J. Smith, San Francisco. All persons who have had any experience with water closets, especially with public water closets, have found how extremely difficult it is to keep them always in a proper condition. Whenever any mechanism is left to be actuated by the user, it will be thrown out of order in a short time, for there is a certain class of individuals who seem to be utterly devoid of any ideas as to the proper management of machinery, and who misuse it in the worst manner. Mr. Smith's device is automatic, the valve being operated by the weight of the person, and his invention will undoubtedly be welcome to many as something which will save money, and insure to the peace of mind of those who are apt to get excited over useless damages, resulting from want of common sense on the part of others.

GRINDING PAN AND AMALGAMATOR.—W. H. Thoss, West Point, Calaveras Co., Cal. This improved grinding and amalgamating pan for gold and silver ores is constructed in sections, so as to be easily transported from one place to another, or to points difficult of access. It has a vertical revolving shaft with horizontal arms, to which are loosely attached peculiarly shaped stone grinders. These are drawn over the bottom, and also thrown out against the sides of the pan, when in operation, so as to thoroughly grind the ore, while, by their peculiar shape, the mercury and pulp will be forced to the center. An adjustable scraper is attached to the arms, and by depressing this, the mercury will be again drawn from the center through the pulp. By this construction, besides the smaller expense of manufacture and ease in transporting, it is sought to effect a more thorough exposure to the metals to the different active influences, and the more intimate mixture of pulp and mercury than is usually obtained.

SAFETY BRIDLE.—J. Weatherhead, San José, Cal. This improvement relates to that class of bridles in which face straps, which are secured to the rings of the bit, pass up over the head of the horse and between his ears. Here the two face straps are attached to a ring upon the top of the horse's head. Short straps then connect from this ring to the bridle reins upon each side, which serve the same purpose as the side straps of the ordinary bridle. Besides these straps, there is attached to the same ring a single rein, which passes to the hands of the driver, and enables him instantly to throw the horse's head in the air by a slight pull, and prevent him from running, kicking or doing other damage. The device is exceedingly effective, and puts the horse entirely under the control of the driver or rider, as a pull on the strap, at the first indication of unruliness, will put the horse out of condition to kick or run away.

ADVERTISING LAMP.—E. Boesch, San Francisco. This lamp is a most neat contrivance which is very ornamental, and cannot fail to attract attention to the advertisement thereon. It is nicely arranged, and brings out the names, etc., very prominently, being useful both in the day time and at night. The invention includes as well an improved device for securing the glass plates of the lantern.

MISCELLANEOUS.

Travel in Second-Class Cars.

EDITORS PRESS:—As we have much pride in the good name that the young and growing State of California should bear, I will endeavor to point out one step that we as well as the older States are taking, which it would seem a little thought might show unprofitable and ungenerous, if not inhuman, wicked and immoral in its tendency. I refer to second-class railroad travel. The most of the roads have provided themselves with a plain, cheap car for each passenger train, to which they invite the emigrant, the common laborer, and all who may feel, from necessity or otherwise, obliged or inclined to economize. That is all well.

Now we would invite the readers attention to the daily picture presented in this second-class car. The outside appearance is quite plain, needing no other sign to indicate to the traveler which one in the train it is. As you enter you find plain seats, may be cushioned, and may be plain boards, with equally cheap finish of inside work generally.

That too, is all well. Seated in this plain car may be seen men of all nationalities, and possibly among them as pure hearts as can be found among the passengers of the cars before or behind them. We also find lady-like looking young women and quite frequently the mother with her precious charge of children, with a heart yearning for good influences to aid her feeble hands in teaching sobriety, good language, and decorum.

But the opposite is true of the picture which this car presents. It is made the receptacle of all the bold drinking, profane language, and unmitigated old pipes, and segars, struggling over each other for mastery in the amount of smoke they may be able to get into a small coach. To add further to the imposition on the better portion of the inmates of the befogged car, many passengers from first-class coaches feel an apparent pride in retiring to a second-class car to indulge in all those ungentlemanly and filthy habits.

We believe this state of things is unprofitable to railroad companies, as it is certainly unpleasant to many who travel in such cars. It drives many of the better class of poor from these thoroughfares and we believe its reformation would be attended with results similar to those which were noticed in the reform of the postal system. When the Government charged twenty-five cents for letters the poor could send but few, making very limited interchange of thought, and not paying mail expenses. But when the postage was reduced to three cents, a revenue sprang up. All can now afford the gratification of a correspondence.

Now suppose the same watchfulness by the conductors in the second-class car, as in the first, in regard to etiquette. The mighty people, the masses, would travel; gaining information and paying back in cash. All railroad men who become instrumental in abating the nuisance complained of, and aiding the poor, but high-minded, to travel in your plain but respectable second-class cars. **WAY SIDE.**

A BAD CONDITION.—Reports and counter-reports of the excesses committed by the striking coal miners of Pennsylvania have been sent to our coast. Exactly the truth, it is difficult to ascertain. So much, however, is certain,—that the condition of things there is very bad. A Philadelphia cotemporary places the matter in a strong light as follows:

A dead lock among the politicians at Harrisburg—a dead lock among the coal producers in the Anthracite region—the iron manufacture half extinguished for want of fuel; and the coal yards empty—Philadelphians begin to envy the happy state of the capital of France, where there only exists a slight unpleasantness between the German guarantee-garrison at St. Denis, the French Republican garrison at Versailles, and the gendarmes of the Commune at Vincennes—to which are added some massacres in the Place Vendôme—some cannon on Montmartre pointed at the Hotel de Ville, and some threats in the Hotel de Ville against Human Society. France and Pennsylvania exhibit at one and the same time what irreconcilable antagonisms may live and grow in the very heart of civilization.

Diamonds for Cutting and Drilling.

It is said that when diamonds are used in cutting hot glass in a glass factory one will last for only a single day. It gradually assumes a milky appearance and becomes worthless; but if the glass be cold the diamond will last for many months. Very small diamonds are used for cutting glass.

Diamonds which are used in the diamond drilling machines are about the size of peas, presenting irregular, smooth surfaces, but more or less opaque and lacking in brilliancy, and having slight, smooth indentations.

It is said there is no perceptible wear to the diamonds, in the work of drilling, notwithstanding the hard and rough work it has to do. Their destruction is caused mainly by the act of "setting." They are set in the drill, into holes which have been previously drilled, in the ordinary manner. Each hole is made as near as possible to the size of the diamond it is to receive, and the stone is secured in its place by so battering the steel around it as to hold it tight. An unlucky blow, in this work, may greatly injure the stone by breaking off a fragment, or entirely destroy it by reducing it to small fragments.

When they are properly and carefully set they can be used until the steel in which they are imbedded has become so worn away by the attrition of the "chips" or "dust," from the rock, in the process of drilling, that the diamonds become loose or nearly so. If the setting is not watched with the greatest care, the diamond is liable to work out when the drill is in motion, in which case it is soon destroyed.

We have seen diamonds that were said to have been in almost constant use for months, on hard rock, which yet showed no perceptible wear. The small indentations so common in their surfaces had not even been ground out. A little diamond dust dropped into the drill hole, or the breaking and grinding up of a diamond from the drill while at work, would soon tell upon those that remained in their settings. The diamonds employed for this purpose generally cost from \$8 to \$12 each.

Toads After a Shower.

"Why," asks "Courant, Jr.," "during a shower, and in the midst of it, do such multitudes of toads, and especially little ones, hop out on the gravel walks?" For many years I believed that they rained down, and I suppose many people think so still. They are so small, and they come in such numbers, that the supposition is not unreasonable. "Thick as toads after a shower" is one of our best proverbs. I asked an explanation of this of a thoughtful woman, indeed a leader in the great movement to have all the toads hop in any direction without any distinction of sex or religion. Her reply was that the toads come out during the shower to get water. This, however, is not the fact. I have discovered that they come out not to get water. I deluged a dry flower-bed the other night with painful after painful of water. Instantly the toads came out of their holes in the dirt by tens and twenties and fifties to escape death by drowning! The big ones hurried away in a ridiculous streak of hopping, and the little ones sprang about in the wildest confusion. The toad is just like any other land animal. When his house is full of water he quits it, and seeks more comfortable quarters.

A CURIOUS ANT.—Probably the most curious ant in the world is the parasol ant of the West Indies. Dr. Forbes Winslow, in his work on light, says these ants walk in long procession, each one carrying a cut leaf over its head as a parasol, in the sun, and they deposit these in holes ten or twelve feet under ground, apparently with no other object than to form a comfortable nest for a species of white snake, which is invariably found coiled up among them.

WOOD ENGRAVING.—Thirty years ago there were not twenty professional wood-engravers in the United States; there are now four hundred. There are thirty-five engravers in steady employ at Harper's, and sixty-eight at Leslie's. In 1869 eighteen thousand wood-engravings were prepared for Mr. Leslie for which \$180,000 were paid.

Land Decision.

About two weeks since, says the *Union*, the United States Surveyor-General requested the Register of the United States Land Office, at Sacramento, to suspend from entry and sale all lands situated upon the east half of township 7 north, range 10 east, which includes Amador City, also the Keystone, Amador and other mining claims of much value, all having claims pending in the Sacramento Land Office. The Register was of opinion that the proceedings could not be suspended, as in cases where lands were claimed as swamped lands, by order of the Surveyor-General, and proceeded to take proofs, notwithstanding the request of suspension, but awaited instructions before making sales. It will be seen by the following letters just received by the Register, that the land intended to be affected by the suspension is not to be deemed suspended, but is to be considered as though it had been returned upon the township plat as mineral land, until otherwise ordered. Wherefore the Land Office business will proceed relative to that township with the exception above specified, the same as before:

The letter to the Register reads: "You will permit none of the land embraced within the east half of said township to be disposed of as 'agricultural,' until further instructed, unless the non-mineral character of the tract applied for be first established in the manner required in cases where the land has been returned as mineral, for upon which affidavits have been filed allowing its mineral character."

That to the Surveyor-General states that payment for the survey having been made, no suspension can be now affected. "The necessary entries have been made, however, upon our records to prevent the disposal of any tracts embraced within the east half of said township until the mineral or non-mineral character of the same shall have been fully established, and the Register and Receiver of the District are authorized to receive testimony respecting any portion of said township in the usual manner."

ROAD WITH SINGLE RAIL.—Mr. J. L. Hadden, C. E., of London, has devised a single-rail tramway for conveyances in mountains and thinly peopled countries, of which he gives the following description: "Imagine a bicycle let in a longitudinal aperture in the center of the bottom of a cart, and the cart nearly touching the ground, so that only about six inches of the wheels would be visible; next, a kind of balancing pole run through the sides of the cart at right angles to the single rail on which the bicycle is to run. The two ends of the pole are to project about three feet on either side of the cart, and rest upon, and be harnessed to the backs of two mules. The animals will thus be one at each side of the load, instead of being in front in the ordinary way. It would be impossible to turn over, because, in order to do so, it would have to force one mule to the ground and to lift the other in the air; and, moreover, as its floor would only be six inches above the rail, an overturn would be of no account. All the weight in the cart, if evenly distributed, would bear upon the rail, and the animals having no load upon their backs, would be able to exert considerable tractive power."

CURIOSITIES OF SOUND.—The whistle of a locomotive is heard 3,300 yards through the air; the noise of a railroad train, 2,800 yards; the report of a musket and the bark of a dog, 1,800 yards; an orchestra or the roll of a drum, 1,600; the human voice reaches to the distance of 1,000 yards; the croaking of frogs, 900 yards; the chirping of crickets, 800 yards. Distinct speaking is heard in the air from below up to a distance of 600 yards; from above, it is only understood to range of 100 yards downward. It has been ascertained that an echo is well reflected from the surface of smooth water only when the voice comes from an elevation.

ENDURING WOOD.—Pliny states that the cedar woodwork of the Temple of Apollo, at Utica, was in a perfect state of preservation after an interval of two thousand years. The famous statue of Diana of the Ephesians, was formed of cedar, and endured for many centuries. The ancient Egyptians extracted an oil from the cedar wood, which they rubbed over the papyrus to preserve them from worms, and which also entered into the composition used for preserving their mummies.

THE MOST RAIN, noted within a year, on this continent fell at Baton Rouge, 1846, being 116.6 inches, for the year. The least noted fell at Fort Yuma, Cal., being 1.78 inches, for the year 1853.

Silk Culture.

During the past planting season, more mulberry plantations have been set out in this State than in any previous year. But more care, skill and prudence are now being exercised, and we may be allowed to hope that better results will be obtained than have been achieved heretofore.

We may be allowed to remark upon the unfortunate circumstances connected with the initiation of silk culture in our State. The first eggs imported and used here were from France. They were of the variety known as the European Yellow Cocoon or French worm. This variety of worms was introduced into France in the 14th century, and up to a very recent period, at least to within twenty years past, it was the great study and care of the French people to keep them pure and unmixed with other varieties.

Thus it will be seen that for centuries they were bred in and in, and all Franco and Italy were stocked with silkworms of one common origin.

Is it any wonder then that the silkworms of France and Italy became weak and diseased? Is it not rather a wonder that the kind did not become extinct, centuries ago?

Practice of the Chinese and Japanese.

The practice of the Chinese and Japanese has been entirely different. They have kept up a constant mixing and interchange of worms from different localities and of different varieties. All who have had any experience with worms imported from those countries must have become convinced of this fact, as there has never been a lot of eggs imported into the State from China or Japan, that did not prove to be a mixture of some three or four different kinds, including annuals, bivoltines, and trivoltines. The first lot of Japanese eggs hatched in the State, were presented to Mr. Prevost by a Frenchman in 1866, and were hatched and fed by him in the Pavilion at Sacramento, in 1867. They proved to be bivoltines and were the first of that kind of worms he had ever seen or heard of. We do not remember to have seen a man much more surprised and astonished than he was, when some eight days after he had packed away the eggs made from them, he found them all hatching again.

Since that date, we have hatched and raised more or less worms from eggs imported from Japan each year, and all have been more or less composed of mixed varieties. In addition to this evidence of the practices of these people in reference to this subject, we are informed by the most intelligent Chinese silk-growers in the State, that it is the annual custom to interchange eggs between China and Japan, and that many of the eggs heretofore shipped from Japan to Europe have been produced in China. The Japanese Merchants buying them in China and making a good profit in the trade.

From the same source we also learn that the Chinese have a way of making any silk eggs hatch as many times in a year as they desire; and that in the southern portions of China they make as many as six crops of silk in a year. Their worms frequently spin these cocoons in eighteen days from the day of hatching. The nights being warm, they have no recourse to artificial heat, but keep up the feeding during the night, as regularly and plentifully as in the day time. This accounts for a universal disposition among the Chinese to over feed the worms here, where the climate, and especially the nights are cooler. They, or many of them, cannot understand why the worms do not eat as rapidly in California as in China. This is the most serious objection to the employment of Chinese in cocooneries, and those who do employ them will do well to watch them in this respect very closely.

Chinese Secret.

The art of forcing the eggs to hatch at pleasure is a great secret among the Chinese, and it is said only a few are able to practice it with success. It is, in fact, a sort of profession or special gift, those who are masters of the art being looked up to as men of some superior endowment. They go about the country practicing the art and commanding very great fees for the same.

We have met but two Chinamen in this State who had any pretensions to a knowledge of the art, and when they were called upon to put it in practice both failed. They attributed their failure to a want of practice in the climate of California, which, they said, being different from that of China, where they had practiced the art, required that the eggs should be treated accordingly, and it might require many

trials before meeting with success.

The plan of operation is as follows:—While the moths are laying, they are confined very closely under a dark covering. When this operation is finished, the moths are thrown away and the eggs remain covered until the next morning early, or about twelve hours from the time they are laid. At this time they are dipped, together with the cloth to which they are attached, into warm water for a certain length of time; then taken out, dried in a warm place until they hatch, which they say should be in about eight days. The secret of success is said to be in the relative degrees of heat in the water and atmosphere, and the length of time that the eggs should be held in the water.

Although the experiments we have witnessed failed to make annual eggs hatch like bivoltines, in the same seasons they were laid, yet the change in color and form through which such eggs passed, was much more similar to the changes that usually take place in bivoltine eggs than those annuals. So much so that we are of the opinion the thing can be successfully accomplished.

The Freezing Process.

Reason would lead us to adapt an entirely different process to arrive at the same result—the forcing of annuals to hatch twice or more in the same season, from that practiced by the Chinese. It would seem that if annual eggs were artificially put through a succession of degrees of heat and cold, similar to those of the seasons, they might be made to hatch the same as they do upon the return of spring. We have never tried or seen this experiment tried, but are assured that it has been successfully accomplished both in France and America. We can see no reason why an artificial winter and spring should not bring about the same changes in the eggs as a natural one.

The Advantages.

In this State where the seasons are long enough to produce two crops of silk, and the trees produce sufficient foliage for that purpose, it would prove of great advantage to be able to hatch the annual eggs the second time, since the annual makes so much stronger and better cocoons than the bivoltines or trivoltines. It would give us a double crop each year, and would more than compensate for any disadvantages we now labor under in consequence of high priced labor.

VICTORIA AND HER LOVE.—Referring to the mausoleum erected at Windsor to the memory of the Prince Consort by his wife, at a cost of £110,000, a correspondent says: Each day Queen Victoria visits this place alone. Near the tomb is placed a large, deep basket, filled with wreaths of beautiful flowers. At hand is a small round table, on which are a Bible and a prayer book. From these she reads and prays fervently, kneeling the while. Then she rises, and taking the wreaths, advances towards the sarcophagus, in the lid of which a small sheet of plate glass is inserted, through which she can see the face and form of the departed. But the efforts of the embalmer have not been thoroughly successful, and the features that were so beautiful in life are, in death, marred by discoloration. Still it is his face, shrunken and pallid though it be. Again she prays, thinking of the years of happiness she lived with him, long passed away, but never to be forgotten. She stands gazing there till she can gaze no more, with tears. Gently she places the forget-me-nots upon the marble coffin, takes one last lingering look with her dim eyes, and slowly retires, while from above the bell tolls out a melancholy requiem for the idolized dead.

GASES EVOLVED BY RIPE FRUITS.—According to Lechartier and Bellamy, picked fruits—such as apples, cherries, and gooseberries—at first absorb oxygen; afterwards they give off carbonic acid, and in larger volume than the previously absorbed oxygen. At first the evolution of gas takes place uniformly, afterwards it moderates, and then ceases for a time, and commences again and gives off more gas than during the first period. An increase of temperature promotes the transformation. Whether light has any influence upon the reaction is not stated. From these observations it will appear that it is unsafe to sleep in apartments where much fruit is stored.

THE BOSTON *Journal of Chemistry* thinks that the introduction of coal oils for lubricating purposes, has diminished the danger of spontaneous combustion, inasmuch as these oils have not the property of absorbing oxygen which is possessed by animal oils.

GOOD HEALTH.

A Lively Medical Application.

The *Medical and Surgical Reporter* publishes the particulars of a lively medical application, which we condense as follows:

A physician in Ithaca, N. Y., was called to see a colored woman, who was afflicted with severe intestinal pains. After administering the usual cathartics, and trying ordinary injections without any result, he came to the conclusion that there was some unusual obstruction in the small intestines which no ordinary treatment would remove. This opinion was strengthened when severe vomiting set in, with regard to which her attendant nurse remarked, "Dat what de nigger vomited smelt juss liko what orter gone de odder wa'."

Only two remedies were then suggested to his mind—opening the abdomen and removing the obstruction, or the novel idea of an injection of *Seidlitz powders*. He finally resolved upon the latter as a possible means of avoiding the necessity of the former, and gave particular directions to have the two papers dissolved and used separately.

That times were quite lively in that room after the administration, may be inferred from the following words of the patient, employed in describing the result to the doctor on his subsequent visit:—"Golly, docta, I had de greatest feelin' in my inwards you ebber herd on; drefful martin', grumblin', growlin' and sich, till I tho't I should bust; den de bowels moved so quick I could hardly git out of bed 'fore chery thing inside seemed to fall down, like as if de hottom had dropped out!"

It is needless to add that the patient speedily recovered. The trouble was thought to be a spasmodic action of the intestines, by which a portion above was made to slide into a portion below; an action brought about by leaning and laboring over the wash-tub. We believe the above mode of administering *Seidlitz powders* is something new in the annals of medicine; but the result fully demonstrates its utility.

DUST SPECTACLES—GOGGLES—NOT GOOD.—Wire-work in spectacle frames was at one time used as such, and called by this name. These dust spectacles have the disadvantage of keeping the eye behind them continually enveloped in the vapor of its own moisture, which cannot fully escape. Thus, the irritated condition is rather increased than diminished. The principal reason for their disuse lies, however, in the impairment of distinct vision, which compels the patient to strain his eyes severely in order to see surrounding objects distinctly. By the wire-work considerable objective light is kept away from the eye, and the frame of the dust spectacles places the translucent gauze in an unfavorable angle to the outer world, thus limiting the visual field; moreover, the manifold diffraction, which the transmitted light undergoes on the wire-gauze, comes into consideration. Besides, when these spectacles are worn in an atmosphere loaded with dust, the meshes of the gauze become filled, and then their defects are increased. Ordinary glass spectacles of circular shape, about an inch in diameter, are to be preferred to the dust spectacles above described. Of course they protect the eye less; but where the dust is so abundant that sufficient protection is not afforded by the ordinary glass spectacles, or where a small amount of dust upon the eye proves injurious, the surgeon does well to prohibit the patient from being thus exposed.

SLEEPLESSNESS AND INDIGESTION.—"How should sleeplessness in a very young babe be treated? also, what will cure indigestion and acidity of stomach?"

Cure the indigestion, and the sleeplessness will disappear. To do this feed the baby less frequently, and do not allow it to take any thing whatever into its stomach except milk, and that only at certain stated times, not less than three hours apart. If the acidity does not soon disappear, extend the time to four hours. Be sure and be regular in the times of feeding. It is very important.—*Herald of Health*.

How to Prevent Spring Sickness.

There are a great many people who are subject to a "bilious attack" every spring, and who expect it as a matter of course. Now there is no more need for people being thus sick in the spring, than at any other time of the year, if they only know how to live. This periodical sickness can be prevented simply by regulating the diet. Not that all persons who have been subject to such attacks year after year, for a long time, can overcome the difficulty at once. We are all such creatures of habit, that when any thing becomes established in this way, there is a strong tendency to its return at the regular time, even after the producing cause has ceased to operate; consequently in bad cases it sometimes takes several years to overcome it entirely. Under a proper regimen the attacks will grow less severe every year, until they entirely disappear.

During cold weather, people eat larger quantities than usually of carbonaceous food, such as fat meats, sugar, butter, bread, cakes and other preparations of white or superfine flour, nuts, fats, syrup, etc. Of course, a much larger quantity of carbonaceous food is required by the system in cold weather than in warm, but as a general thing people eat too much of it, clog up their system with the excess and overburden the excretory organs, particularly the liver, in vain efforts to get rid of it. These who take a great deal out-door exercise are usually enabled to work it off, and seldom suffer much in consequence, except in hot weather; while those who lead a sedentary in-door life suffer most. When warm weather comes on in the spring, people require much less carbonaceous food, but instead of changing their diet as the weather changes, they continue to eat the same kinds of food—they have been eating during the coldest weather of the winter, and the consequence is that the already overburdened liver is unable to bear up under this extra load, and utterly refuses to perform its function until it has had a chance to rest and to throw off its accumulated burdens. Now to prevent this state of things two things are necessary. First, people must eat a less portion of carbonaceous food at all times. Second, as the weather grows warmer in the spring they must eat a much less quantity of it than they do in cold weather, and substitute instead more vegetables and acid fruits. Every family should have a larger supply of canned fruits and green vegetables to use at this time of year. For a single article there is nothing so good as tart apples, and they should be used in unlimited quantities.—*Herald of Health*.

SICK ROOMS: DECISION AND QUIETNESS. Consult your patient's wants, but consult him as little as possible. Your decision need not be very obvious and positive; but it is the triumph of supremacy to become unconsciously supreme. The decisive nurse is never peremptory, never loud. Though quiet, she never walks tip-toe; she never makes gestures; all is open and above-board; her shoes never creak. Her touch is steady and encouraging. She never looks at you sideways. You never catch her watching. She never slams the door, of course, but she never shuts it slowly, as if she were cracking a nut in the hinge. She never talks behind it. She never peeps. She pokes the fire skilfully, with firm, judicious penetration. She caresses one kind of patient with genuine sympathy; she talks to another as if he were well. She is never in a hurry. She is worth her weight in gold, and has a healthy prejudice against physic, which, however, she knows at the right time how to conceal.

TREATMENT OF INFANTILE DIARRHŒA.—Dr. R. W. Foss, in the *British Medical Journal*, recommends the use of the powder or mucilage of gum-arabic in the diarrhœas of infants. When the stools are green or pure fluid and involuntary, he adds gray powder in the proportion of one part to twenty of the prepared gum, of which five grains are given as a dose. When there is simple diarrhœa, with foetid stools, one part of the mucilage to three of water is all that is required.

YOUNG CANTHARIDES.—It is said that the young, immature cantharis insect does not possess any considerable blistering properties. That power is possessed by the adult only.

SAYS the celebrated Dr. Boerhave, keep the head cool, the feet warm, the bowels open, and the aid of a physician will be seldom needed.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG
W. B. EWER JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance—For one year \$4; six months, \$2.50; three months, \$1.25. Clubs of ten names or more \$3 each per annum.

San Francisco:

Saturday Morning, April 22, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Apr. 18, 1871. Legal Tenders buying @90½; selling @91. Gold in New York to-day 114.

Table of Contents.

Two Free Universities; The Prize Mower; Ill; Reception of Mr. W. H. Webb.....	241
MECHANICAL PROGRESS.—Hydrostatic Pressure on Steam Vessels; American and English Engine Building; Compressed Air in Mining; Blast Furnace Engine; Spike-Making Machine.....	242
SCIENTIFIC PROGRESS.—The Bessemer Flame; Sun Spots; Vision under Water; Fossil Cetacea; Thickness of Sedimentary Rocks. 242	
Flint Creek, Montana; Eclipse M. Co., Inyo County; Transcontinental Traffic; Banner District.....	242
MINING SUMMARY; Shareholder's Directory; Market Rates.....	244, 245
List of Patents; Notices of Recent Patents; Travel in Second-Class Cars; Toads after a Shower; Land Decision; Road with Single Rail.....	246
Silk Culture; Good Health.....	247
Dry Concentrator for Placer Sands; Working of Ores at the Auburn Mill, Reno; The Oroville Bridge.....	248
Printers' Cemetery, Ill; Borax; Cal. Wagon Manufacture; Willard Furnaces.....	249
Eating Raw Meat; The Pot on the Fire; Philosophy of Eating; Domestic Receipts; Mechanical Hints.....	250
New Books; Important Railroad Sale; Utah Mines; Narrow Gauge.....	252

MECHANIC ARTS COLLEGE LECTURE.

The lecture to-night before the Mechanic Arts College should not be forgotten. It will commence at 8 o'clock promptly. Prof. Kellogg will commence his course of three lectures.

Dry Concentrator for Placer Sands.

Mr. Frederick Valentine showed us, last week, at Clerc & Co.'s City Foundry, on Fremont street, an ingenious air-concentrator for placer sands. The machine consists of two concentrators driven by horsepower. The sands are dried in simple furnaces, sorted on sieves, and then concentrated by air. The one now being constructed is for use in San Diego county. A similar machine has been tried in several parts of this State and in Mexico with great success, we are told.

One of the double machines will concentrate 100 tons of sands in 10 hours. The average of the sand worked has paid about 50 cents to the ton, while the expense is about 15 cents per ton. This would indicate that the concentrator will be found a valuable device in many places, and will enable poor placers to be worked which otherwise would be unproductive. A similar machine has been used for separating sulphurets. The apparatus is light, simple in construction, durable, and easily moved from place to place. Mr. Valentine has had extensive experience in workings of the kind for which his invention is intended, and believes that he has a valuable device. He operated his machine a few moments while we were present, when it worked very satisfactorily.

METROPOLITAN GAS COMPANY.—On Tuesday, this company commenced laying their mains in this city. The company will manufacture entirely from California crude petroleum, by the Gale and Rand process. By their franchise, they can charge only \$3.50 per 1,000 feet. The Pacific Foundry is engaged in casting 8-inch pipe for the company, and have already turned out over 2,000 feet and are making it at the rate of 150 feet per day.

Working of Ores at the Auburn Mill.

[BY OTTO KAR HOFMANN.]

The successful treatment of rebellious silver ores, as well as a conscientious and able business management, secured to the Auburn mill, near Reno, Nevada, not only a good name, but also the well-merited confidence of customers; and it might be interesting to some readers of the SCIENTIFIC PRESS to learn the method of manipulation of that mill, which is the property of the Nevada Land and Mining Company, with head-quarters at London, England. The present Manager and Superintendent is F. F. Osbiston, Esq., under whose skillful direction the good name and efficiency of the establishment will be still more promoted.

A favorable locality admitted the erection of suitable and practical reduction works. There is a very capacious ore and sampling-house, a 20-stamp battery, twelve Varney's pans, six settlers, and, in an adjoining department, a boiler and retorting furnaces. All parts are so arranged, one above the other, as to avoid the handling of ore. On the left side of the battery there is a Stetefeldt roasting furnace with a feeding apparatus, taking the ore direct from the batteries. The cooling floor of the furnace is on the same level with the pans. The motive power, taken from the Truckee River, is abundant, summer and winter, supplying an overshot wheel of 34-foot diameter and 22-foot face.

Sampling the Ore.

A very important question, requiring great care in a custom mill, is the sampling. In order to obtain a true result of the assay, the small quantity of ore taken for this purpose must contain the same amount of precious metals proportionally as the whole mass from which it was taken. For this reason, the sampling requires great precision, cleanliness and order. A correct proceeding is troublesome and expensive, but indispensable in order to satisfy the customers and the mill management itself, and also to ascertain the real percentage of the value extracted. A neglect in this operation is generally followed by very disagreeable consequences.

The first requirement for the purpose of sampling is the reduction of the mass to a uniform small size. It is not necessary to have the whole mass reduced to a fine pulp. This must be avoided for several reasons. It is an erroneous supposition that sampling before the battery during the crushing is the most proper way. It is incorrect for these reasons:

1st. The sampling must be trusted to the workmen, as it requires from 6 to 48 hours or more, according to the amount of ore, before the whole lot is crushed up.

2d. The ore is mixed with the necessary percentage of salt before crushing, in order to have it roasted in the Stetefeldt furnace. In making the assay, this salt must be taken into account after the amount of its water has been ascertained. The same applies also to other chemicals or ingredients mixed with the ore on account of base metals. Although this rectification shows no special difficulty, it is sometimes, nevertheless, a source of mistakes.

3d. If samples are taken at regular intervals, a somewhat uniform mixture and quality of ore is anticipated, which seldom exists in reality.

4th. In case there is gold, native silver or chloride of silver in the ore, a good deal of it will remain in the battery, causing a poorer sample. Besides this, the owner of the ore is bound to wait for the returns till all his ore is crushed and pulverized, while only a few hours are required to finish the sampling in a different and more reliable way.

At the Auburn mill, the sampling is performed in the same way as in Swansea and Andreasberg (Hartz) with rich ores. The ore is broken first to the size of a walnut and spread out uniformly, on a clean platform, in a flat, square pile. Then four canals are made, crossing each other. From the ore obtained from these canals, a smaller flat layer is formed, similar to the former. The canals must be made down to the floor, and nothing left therein. Each canal-stuff is then spread on the floor, covered uniformly with the ore of the next canal, and so on until all four are finished. From this a third heap is formed by canal-cutting, and the process is continued in this way until the pile is reduced in weight to about 100 pounds. This is crushed finer—to the size of a bean—spread again flat, and from 40 to 50 pounds taken as before

and ground to a fine powder. It is then delivered to the assay office, provided with the proper label. This quantity, by a similar operation in the assay office, is reduced to about one pound.

Assaying the Ore.

In order to ascertain the moisture in the ore, a certain quantity of the sample is dried in a porcelain dish above an alcohol lamp, on a sand bath, at a temperature not exceeding boiling heat, until a cold glass plate, kept above the sample, does not appear coated with precipitated vapor. Two weighings taken at short intervals must agree. The required temperature is easily observed and regulated, if the sample is continually stirred with the quicksilver end of a thermometer, the temperature indicated being carefully observed. The loss of water is then proportionately subtracted from the ore, as the sample subjected to the assay is of the same dryness.

One pound of the sample, for the purpose of assaying, is dried in an iron pan, above a slight charcoal fire, the temperature being regulated in the same way, by the use of the thermometer. The dry sample is then divided into two equal parts, one of which is given to the owner of the ore, the other kept in the office after the assay sample has been taken therefrom. From each sample two assays are made, the result of which must correspond exactly, otherwise a third or controlling assay is made. From ores containing less than \$300 per ton, half an ounce is taken; from richer ore only one fourth of an ounce, in order to avoid a larger loss of silver in cupellation. In case the shipper of the ore should get a higher yield of his duplicate sample, if assayed elsewhere, the reserve sample is then sent to one of the prominent assay offices of San Francisco to decide the question. Should there be a difference in favor of the shipper, it would be remitted to him. Such reclaims, however, are very seldom, have occurred only twice, and in each case the mill assay was correct.

As soon as the value of the shipment is ascertained, the due amount for the ore is paid up to the owner. The use of the Stetefeldt roasting furnace free from royalty, the excellent water power and other advantages enable the establishment to offer the highest prices for ores of every description. The price tariff is published in most of the newspapers. The shipper is always invited to be present at the sampling of his ore.

Roasting the Ore.

The roasting of ore is performed in the Stetefeldt furnace, the best and simplest amongst all furnaces known. The description of this furnace has been given in the Press and other scientific journals. A detailed description of the furnace and the proceedings in roasting will be found also in Kustel's book on the "Roasting of Gold and Silver Ores."

It is the most important advance that our young metallurgy of silver ores can show. The influence of the Stetefeldt furnace on mines of low-grade ores will soon be apparent. The manipulation is simplified, the result improved, expenses reduced and efficiency greatly increased. From 25 to 30 tons of ore, and more, can be roasted in 24 hours with one single furnace by the aid of six workmen, without skill or experience, to the best advantage, replacing 15 common reverberatory furnaces, employing about 90 men, who must understand roasting. The roasting itself in the Stetefeldt furnace is entirely independent of the workmen, whose principal business is to keep up a steady fire, attend to the feeding machinery, and draw the roasted ore out of the furnace.

Extent of Chlorination.

The roasting expenses are not over \$1 per ton of ore. Eighty-seven to 95½ per cent. of the silver is transformed into a chloride, according to the character of the ore. Having the assay department in charge, I have had opportunity to inform myself of the result of roasting of different kinds of ores. Cupriferous silver ores give a better result in roasting than plumbiferous, as is the case also with the reverberatory furnaces; but while ores containing lead are difficult or even impossible to be treated advantageously in a reverberatory furnace, the Stetefeldt chloridizes 87 per cent. of the silver, if there is 20 per cent. of lead in the ore. Is less lead present, the chlorination comes up to 91½ per cent. I have had no occasion to observe how ore would behave containing more lead than 20 per cent. Is the amount of lead too high, it happens that a partial clotting of the mass occurs while accumulating at the bottom of the furnace, which, however, can be avoided easily by adding to the ore some charcoal during the crushing. The

charcoal acts only mechanically, preventing the immediate contact of ore particles. No lead is reduced thereby.

The chlorination of the silver I found to be 87 per cent. from very base ore holding a high amount of lead; the highest with cupriferous ores was 95½ per cent. The average of all assays of this kind showed 91½ per cent.

The greatest part of the chlorination is effected during the free fall of ore through the glowing chlorine-atmosphere. The finishing occurs while the stuff is lying at the bottom of the furnace. According to this, an arrangement for permanent drawing of the roasted ore would grow injurious. For the same reason, at the Auburn mill, the feeding is stopped during the discharge. At the moment the ore reaches the bottom, it shows from 19 to 27 per cent. less chloride of silver than if allowed to remain till about a ton or so is accumulated.

Of cupriferous ores, I found that, if the ore assayed 12 per cent. in copper, 22 per cent. of it volatilized into the condensing chambers, 10 per cent. remained in the ore as a chloride and subchloride, and the balance turned into an oxide.

Of ores containing lead, I found from 20 to 60 per cent. less had in the ore after roasting. For this reason the bullion from base ores is seldom below 600 fine.

The roasted ore is changed as usually about 800 pounds at a time, and amalgamated for six hours. The amalgam is re-torted, and the bullion assayed in the wet way after Guy-Lussac's method.

The Oroville Bridge.

Butte county has just completed a contract with the Pacific Bridge Company, of Oakland, to put a bridge over Feather river at Oroville. It consists of two main spans, one of 178 feet and the other of two hundred and twenty-eight feet. This last will probably be the longest span yet built on the coast. It is to be constructed throughout on the Smith Patent Truss Plan, which we illustrated and described in full in a previous number of the Press, and which is rapidly coming into favor. The truss is twenty-one feet high and twenty-two feet wide, with double roadways.

The piers are constructed of cast iron, on Smith's improved plan. Cylinders, 4 feet 6 inches in diameter, are sunk to bed rock and filled with concrete. These are braced, so that the two forming a pier act perfectly together. For rapid currents this plan of pier will undoubtedly become very popular, and it is quite as durable in most places as stone. The whole superstructure is placed over forty feet above low water, and is covered and painted. The contract price is \$18,000. We congratulate Oroville and Butte county generally on this much needed and valuable improvement.

We can also congratulate the coast on the introduction of this new manufacture. The bridge contains very many excellent advantages to which we have before alluded, and the managers of the company evince the most praiseworthy spirit in the manner in which they are going to work. We predict that they will meet with the success which they deserve.

DEPOSITS OF WOLFRAM occur, says the *Deutsche Industrie-Zeitung*, in Chili, Connecticut, Cornwall, Siberia, France, the Hartz and Saxony. (The mineral occurs also in Cumberland, England, and in Missouri and Maine, also in the Hebrides.) One of the richest localities is Zinnwald, Saxony, where occurs a combination of tungstate of iron and manganese, together with scheelite. The first named ore is particularly pure and valuable for iron and steel manufacture.

DYNAMITE-EXPLOSION.—In May, the dynamite factory of Nobel, at Krümmel, Lauenburg, was blown up, and the chemist and four workmen killed.

THE ZINC PRODUCTION of the United States in 1860, was valued at \$10,800. Up to the end of June, 1870, Missouri alone had produced zinc to the value of \$102,000. *B. u. Zeitung.*

A Printers' Cemetery.

There is a newspaper proprietor in Philadelphia, who has won a wide-spread reputation for the interest he shows in his employes. Having himself gained a fortune, he has not thereby lost his love of his fellow-men, nor has success hardened his heart against those to whom such success has not yet come. Recognizing the truth of the principle that the employer is under many obligations to the employed, that no blessing in life is unattended with corresponding responsibilities, he gives encouragement to every honest worker and cares especially for those who toil for him. He provides for the comfort and health of his workmen during their life, secures an insurance on their lives for the benefit of their families when they die, and finally has furnished a proper resting place for their bodies, when their toils and struggles on this earth have ceased forever.

This newspaper proprietor is Mr. George W. Childs, owner of the *Philadelphia Public Ledger*.

Several years ago, Mr. Childs presented a large and beautiful lot in the Woodlands Cemetery to the Philadelphia Typographical Society, an association of printers chartered in 1831. The lot contains about two thousand superficial feet and is entered through a marble gateway, of massive size and great beauty, which is shown in the accompanying illustration. It was formally dedicated by the society on October 17th, 1861, with fitting ceremonies.

The gift was peculiarly appropriate as coming from the generous donor and as being given to the members of the brotherhood of the art preservative. Surely, if any one deserves a pleasant resting place for the tired body, it is those who diffuse knowledge and render thought imperishable.

BORAX.—A very handsome specimen of refined borax has been on exhibition at the Merchants' Exchange in this city. It is from the deposits of the company owning the Columbus marshes in Nevada, a lot of twenty-five tons having been lately sent here for experimental trial. Mosheimer has had charge of the refining, and claims to have an improved process, by which he can produce a superior article at a small expense. The experiments are said to have resulted so successfully that the company are taking measures for working their borax on a large scale.

California Improved Farm Wagon.

Until within a few years, in consequence of the great expense of importing in their bulky form ready-made wagons, and of the length of time necessarily consumed in the voyage here by water, the California mechanics held almost a monopoly in supplying the farmers and others on this coast with vehicles of all kinds and especially with farm wagons.

The importers of the raw materials, lumber and iron, used in the manufacture of these vehicles also had a good and profitable trade at almost their own prices. The importation by rail, only a few days from the shops, of wagons made at South Bend, Chicago and other Western cities, took our mechanics by surprise, and has very materially cut off their business and profits; so much so that some of them have become disheartened, and have abandoned the legitimate manufacturing business, and accepted agencies for the sale of imported wagons, using their own shops for setting up and preparing for sale wagons made in Indiana, Illinois, and other Western States, thus giving employment to capital and labor of those States in preference to our own.

At first sight it would seem as though

our California manufacturers would generally be driven to adopt the same course, or to seek other sources of business for a livelihood. The manufacturers east of the Rocky Mountains, many of them, made large fortunes in supplying the Government and other extraordinary demands during the war, and are consequently in condition to take all advantages of the market in purchasing the raw materials. They have extensive and well-organized shops and machinery, and can, by a judicious division of labor, use that machinery and labor to the very best advantage. They are in the immediate vicinity of an almost unlimited supply of hard timber, and but a short distance from the iron factories, so that all their purchases can be made from first hands and at the lowest figures and on the very best terms as to time, etc.

The capital employed in their business is worth but six or seven per cent. per annum, and their business is so managed that interest on so much of that capital as is invested in stock or raw materials does not count against them until it is nearly ready to be turned again into cash, by the sale of the manufactured articles.

in supplying the demand for the entire coast.

We have the figures to sustain this belief, but will refrain from presenting them this week. We can give, however, one example at least of successful farm wagon manufacture on this coast.

Mr. E. Soule, of Sacramento, a thorough mechanic, an intelligent man and self-sacrificing Californian, seeing the danger to this branch of California manufactures, in consequence of the importation and sale of the trans-mountain wagons, resolved finally to stand his ground and do what he could, single-handed, if need be, to maintain the manufacturing reputation and interests of this State. He counseled with the importers of iron and hard lumber and paints, and oil, and by his representation obtained large concessions from their former prices and time restrictions; he talked with leading merchants and business men and interested them in his enterprise and enlisted their interest in his favor, or in favor of his plans.

Being thus sustained and encouraged he went into his shop in August last, and with four good and trusty mechanics commenced



ENTRANCE TO THE PRINTERS' CEMETERY NEAR PHILADELPHIA.

On the other hand, our manufacturers of wagons are generally men of limited means and have heretofore been compelled to buy their lumber and iron of the importers on this coast, and pay them a good round profit, and settle their bills at the end of each thirty days, so that the importers have made the money out of this trade, and not the manufacturers.

Their shops are generally small, the business being very much cut up between a great number; and so ill supplied with tools and machinery and facilities, that it is impossible to economize the means in their hands to good advantage.

The capital employed in their business is worth here, from twelve to fifteen per cent per annum, and many of them are compelled to pay one and a quarter per cent. per month, and that compounded monthly for a large share of the money actually employed in their business.

These are some of the strongest considerations in favor of the importer and against the home manufacturers and it must be admitted that, at first thought they seem to be insurmountable. Yet we believe, and we are glad to find that many of our most careful, intelligent and prosperous mechanics fully coincide with us in this belief, that all these advantages can be overcome and California may, at no distant day, successfully compete with her most prosperous manufacturing sisters east of the Rocky Mountains, and not only supply her own people with all the farm wagons and other vehicles, but to do her full share

manufacturing.

He exhibited his wagons at the State Fair for 1870, and received for them the first premium. He also exhibited an improvement of his own, on the thimble skein, and was awarded the first premium on that also. He has succeeded in getting up a wagon in all respects particularly adapted to the wants of California. He uses none but the very best Eastern second-growth timber and best quality of iron, and employs none but the best mechanics about his shop. He is now, we are glad to say, making a fair profit on the business. He is now working eighteen men and if he had shop facilities, the orders for wagons being received by him would warrant the constant employment of forty.

THE ACADEMY OF SCIENCES held its regular meeting on Monday. A number of specimens were presented to the cabinet. Dr. Ayres stated that while on a visit to Napa, recently, he was shown a trout captured in Clear Lake, which was 31½ inches in length. He says that trout had not been found in Clear Lake until within a few years. Dr. Blake called attention to the condition of the atmosphere during the past few days. The barometer had been lower than at any previous period during the winter. A southerly wind had prevailed for an unusual length of time. Mr. Hanks gave an interesting description of the Owens' river country. An Ecuador mummy of a female child was presented for inspection. The next meeting will be held May 1st.

The Willard Furnace.

The *Colorado Register*, of April 12th, gives a description of the Willard furnaces, now in operation at Jamestown, which we condense. The fuel is naphtha gas, thus prepared:—Outside the building and standing clear from it, are two large boiler-iron cylinders, made air-tight, and used as reservoirs for the naphtha. From these the oil is pumped, whenever needed, into a smaller iron cylinder placed within the mill, containing a worm or coil of pipe through which steam is passed. As naphtha is volatile at a comparatively low temperature, the heat of the steam is sufficient to produce a gas, which passes from the top of this cylinder into a second. This serves as a gasometer, from which the gas is fed to the furnaces through ordinary gas pipe. This is all of the operation visible, and appears to be attended with but little cost. The furnaces proper are circular stacks, about ten feet high and lined with fire-brick. They rest upon a pit also of brick, which receives the roasted ore, and their flues, to which a blower is connected, pass through a condenser to the main stack. On top of each furnace are two tuyeres—hollow cylindrical iron rings, six inches wide, and about the same height, with twelve inches inside diameter, placed one above the other, into one of which is introduced gas, and into the other ordinary steam. At

the top of the inner circumference of the lower ring, and at the bottom of the upper one, are slits extending clear around the circle through which the gas and steam are admitted to the furnace. The gas is lighted at its point of issue from the tuyere, and is drawn downward by the draft of the blower, forming a cylindrical flame. It will be seen that the gas and steam are admitted at points so nearly identical that a perfect mixing must result. When the furnace is to be used, the gas is first lighted, burning with a brilliant yellow flame. After a little, the steam is let on, and so mixes or re-acts upon the gas flame as to produce a deep blue flame, as if sufficient oxygen for complete combustion was not present. The ore drops into the stack from a screen-feeder placed above the tuyeres. And here is seen a marked difference from any of the ordinary methods of roasting. For the ore that we saw treated was heavily sulphuretted, but instead of exhibiting brilliant rainbow colors when dropping in the flame, as is the case in an oxidizing roasting, the particles flashed up for a moment with an intense yellow color. The roasted ore has every appearance of being well done, and is of a bright red color. The inference might be that the superheated steam decomposes in the gas flame, furnishing hydrogen for a desulphurizing agent, but for the fact that no smell of sulphuretted hydrogen can be perceived, sulphurous acid gas instead, being one of the chief products of combustion. However, we have not sufficiently investigated the re-actions in this roasting, to be able to explain them satisfactorily, even to ourselves. But this much we can say of what we actually saw. A cold furnace was heated sufficiently for work in less than five minutes, and ore was passed through it very rapidly; we should judge at the rate of over 1,000 pounds an hour. We saw some of the roasted ore panned, giving a result that surprised us, for we were not prepared to see the gold so bright, nor the ore apparently so well roasted. Still the assayer, not the sight-seer, is the only correct judge of results. Carefully averaged assays of the raw ore, and of the tailings, as well as of the resultant bullion, can alone prove the value of this or any other process. To us, as lookers-on, it certainly seemed economical and very promising.

THE COCO PINO, a new fire-kindler, recently patented by Mr. J. W. Still, through the Scientific Press Patent Agency, has been tested at this office, and found to answer excellently well the claims made for it. Clean and compact, cheap, kindling into a quick flame the most obstinate fuel, it is an article which will be sought for eagerly. It is in one respect worthy of being called one of the reformers of the day, not only for its effect on the fuel, but also for its influence on the maker of fires, who can now find no excuse for hasty language at dilatory flames. We therefore recommend it all the more cheerfully. It is extensively manufactured by Messrs. Pancoast & Co., and can be obtained of all wood, coal and grocery dealers.

DOMESTIC ECONOMY.

Eating Raw Meat.

There exists a striking partiality in some countries for eating raw food. Raw fish, thinly sliced, forms a delicacy in a Chinese banquet. The Kaffirs eat alternately a slice of raw beef and one cooked. There is a peculiar variety of the salmon, which the Russians—especially in the extreme north—consider delicious, when eaten raw.

As a general thing cold tends to favor an appetite for raw food. Frozen meat is not particularly unpalatable to any appetite, especially if tasted in freezing weather and in the open air.

Most people, who have labored in the open air, in the woods or on the ice, in our extreme northern States, can testify to the delicious taste of a piece of thin, frozen, raw, fat pork on a slice of bread, for lunch. We have enjoyed it with much relish, and never knew a person who did not, when invited to eat it under similar circumstances.

Capt. Hall's testimony is given as follows:—"My opinion is that the Esquimaux practice of eating their food raw is a good one; at least for the better preservation of their health."

Eating meats raw or cooked is quite a matter of education, as we see in every day life, in our own midst. Many, if not most people, even in the mild climate of California, prefer their roast beef or steak so rare done that the blood follows the knife—that is, *raw*. A little "smell" of cooking upon the outside suffices; and that is generally left for those who like their meats "well done."

As a matter of health, there is no doubt but that *very* rare meats are preferable; they are more easily digested, and the nourishing juices of the meat are in the best condition to build up the system. A very little *dry* cooking destroys their nourishing properties. They are also greatly injured by a rapid boiling. Another article in this department, on the subject of boiling meats, is worth considering. Meats when cooked in the "pot" should be boiled very slowly, and a long time—they should be gradually "digested" in a very small quantity of water, and the residual liquid eaten with the meat.

The Pot on the Fire.

There is one mode of preparing food in general use in many parts of Europe which we should do very well more generally to adopt; that is, "gentle simmering." In every or almost every French household there is the *pot au feu*. This permanent "pot on the fire," after the manner of the old-fashioned "digester," occupies a quiet little corner of the stove or fireplace. It can hardly be said to boil, but it simmers on gently, very gently, for hours. There it is the receptacle of many a little bone, whether the trimmings of poultry or butcher's meat. It matters not, every little stray fragment of wholesome meat finds its way there. A bit of liver is considered a great improvement; and any vegetables that happen to be about add to its pleasant flavor, whether the tops of celery, Jerusalem artichokes—which, par excellence, make it delicious—or otherwise carrots, turnips, leeks, etc. But supposing it were to be made altogether of fresh materials—which, indeed, in France it rarely is—this would be the proper recipe: Put a gallon of water into a pot; put into this either three or four pounds of shin of beef, or any similar thing. Add to this an onion or two, or some leeks, carrots or some other vegetable, three or four teaspoonful of salt, one of black pepper, three cloves. Give it one boil up; skim carefully. Now cover the pot closely, and let it cook gently, for four hours at the least. About every hour throw a wineglassful of cold water into it, to make it clear. Taste: it may require a little more salt or pepper, according to taste. Pour this soup over toasted crusts of bread. Both soup and meat will be found delicious. The whole secret of this lies in the gentle simmering in a covered vessel, whereby the flavor is wholly preserved, and nothing is lost.

The Philosophy of Eating.

The young eat for three reasons: 1st, to grow; 2d, to keep warm; 3d, to repair waste. Hence, all food contains one of two elements, and some kinds both, called nitrogen and carbon. The nitrogen makes flesh, sometimes called muscle, and is the same as lean meat. Carbon makes fat, and is that which keeps us warm. Sugar, starch, arrowroot, oil, butter, suet and lard have no nitrogen; there is nothing in them to make flesh out of; all the nutriment they afford is carbon, the material for warmth.

Infants and young children would get so chilly as to freeze, as it were, unless they had something sweet in their food; hence nature has implanted in them an unappeasable taste for sweet things. The thing the newborn infant needs first and always is warmth. Butter, oils and starches abound also in the heat-producing elements, but require strong powers of digestion, are applicable to grown-up persons and to the old; hence, as we grow old, we like fat meats and butter more.

It is in obedience to these laws that the Almighty beneficence and wisdom has imparted a relish for the oils and fat meats in winter, because extra heat is needed. Greenlanders, whose country is always covered with ice and snow, consider butter and lard, and tallow candles, and the rankiest oils the greatest luxuries conceivable. But rice, on which many in warm countries chiefly live, is said to contain scarce one per cent. of the fat or heat-producing element, while oils have ninety-six per cent. of it.

All know how buckwheat cakes are relished in winter; but as spring comes on we begin to lose our appetites for them. The cakes themselves contain fifty-four per cent. of fat as heat producing elements, and they are made more palatable by spreading butter on them, and molasses, each being almost entirely (ninety-six per cent.) heat-producing.

But out-door workers eat meat and bread the year round, and never weary of it, because twenty-two per cent. of such food is flesh forming, and gives that much power and strength to work.—*Hall's Journal of Health.*

INSECT APPETITE.—The man who wished he had a throat a mile long, and a palate all the way, might envy the feats performed in the world of insignificance. Some insects are endowed with an appetite so keen, and a digestion so rapid, that they eat incessantly throughout the whole of their lives. They begin as soon as they are born, and go steadily on till they die. Their existence is a feast, without a change of plates, or a pause between the courses. Morning, noon and night, their mouths are full, and an endless procession of favorite food gratifies the unwearied palate. They know not the names of meals. Breakfast commences with infancy, and their only after-dinner nap is a passage to another state of existence.

UTILIZING SUBSTANCES FOR FOOD.—The siege of Paris will have resulted in at least one good thing, viz., the turning scientific attention towards the utilization of substances for food. We learn that Prof. M. Decaisne has brought forward a plan for the rapid forcing of cabbages, radishes, and other vegetables, which are to be sown in highly manured land, kept for a fortnight, and used stem and root. Bones, too, are much more utilized than before, by the extraction of the osseine by the action of acid, and this is made up in various palatable and nutritious substitutes for butter and jelly.

GALL-SOAP.—Gall-soap, for the washing of fine silken cloths and ribbons, is prepared in the following manner: In a vessel of copper one pound of cocoa-nut oil is heated to 60° Fahr., whereupon half a pound of caustic soda is added with constant stirring. In another vessel, half a pound of white Venetian turpentine is heated, and when quite hot, stirred into the copper kettle. This kettle is then covered and left for four hours, being gently heated, after which the fire is increased until the contents are perfectly clear, whereupon one pound of ox-gall is added. After this enough good, perfectly dry castile soap is stirred into the mixture to cause the whole to yield but little under the pressure of the fingers; for which purpose, from one to two pounds of soap are required for the above quantity. After cooling, the soap is cut into pieces. It is excellent, and will not injure the finest colors.—*Builder.*

A PROCESS has been invented by which castor oil is made palatable, and can be eaten on bread like so much honey.

Domestic Receipts.

DOUGHNUTS.—Boil one quart of new milk and melt in it half a pound of butter. Beat three eggs with two pounds of sugar, then pour on the boiling milk, stirring all the time. When nearly cold stir in a tea-cup of yeast, a teaspoonful of salt, and flour enough to make a stiff batter. When quite light knead in flour enough to make a soft dough. Add a grated nutmeg and a little mace. Let it rise again until very light, roll it out, cut in strips or according to fancy, and fry in hot lard.

CREAM PIE.—Boil three-fourths of a cup of butter in one half pint of water; while boiling, stir in one and three fourths cups of flour. Take from the fire, and stir five unbeaten eggs slowly in with half a teaspoonful of dry soda. Drop on buttered pans, half the size you want when done, split and fill with the following mixture:

Boil one pint of milk, and while boiling, stir in three well-beaten eggs, one cup of sugar, and one-fourth cup of flour. Flavor when cold.

WINE SAUCE.—One and a half cups sugar, half cup butter, beaten well together; then add a glass of wine, two tablespoonfuls of flour, wet with cold water, and let it stand for a few minutes on the stove, then pour it in the butter and sugar and beat it up; grate some nutmeg in it and serve hot.

SPICE CAKES.—Four eggs, one cup of sugar, one cup of molasses, one of butter-milk, half cup butter, one teaspoonful of soda, one table-spoonful of cloves, one table-spoonful of cinnamon, two cups of currants, one nutmeg, mix not very stiff.

FRIED POTATOES.—Pare them, then slice them with a potato or cabbage cutter. Soak the slices all night in very cold water. In the morning dry them in a towel then fry in boiling lard, only cooking a few at a time. Five minutes will cook them if the fat is as hot as it should be.

PORK CAKE.—One cup of chopped pork, one cup of raisins, one cup molasses, one cup milk, four cups flour, one teaspoonful each of salt and soda. Spice to taste.

CIDER CAKE.—Two pounds flour, one pound butter, one and one-fourth pound sugar, one pound fruit, five eggs, two teaspoons soda, four teaspoons different spices, one pint cider.

Mechanical Hints.

TO DISSOLVE SHELLAC QUICKLY.—White shellac may be readily dissolved in the following manner: Put the shellac with some naphtha, or spirits of wine into a wide-mouthed bottle, and fix the bottle in a lathe. By keeping it continually but slowly revolving it will dissolve in about six hours. White shellac mixed with brown, makes a liquid glue impervious to moisture while the former alone makes a good cement for mending glass or porcelain.

BLACK-LEAD PENCIL DRAWING, OR CHARCOAL DRAWINGS, may be fixed by a process which involves but little expense or trouble. Thus: Prepare a solution in moderate strength of bleached shellac in alcohol; wash over the back of the sheet of paper with this, and the drawing on the front will become fixed. In this way, as will be understood, there is no risk of smearing the lines of the drawing.

TO IMITATE BLACK WALNUT.—The appearance of walnut may be given to white woods, by painting or sponging them with a concentrated warm solution of permanganate of potassa. The effect is different on different kinds of timber, some becoming stained very rapidly, others requiring more time for the result. The permanganate is decomposed by the woody fibre; brown peroxyde of manganese is precipitated, which is afterwards removed by washing them with water. The wood, when dry, may be varnished, and will be found to resemble very closely the naturally dark woods.

GILDING ON SLATE.—Use equal parts of glaire and water; when dry, rub with whitening, and be sure that it is dry; put your figures on with gold size and a little chrome or vermilion just for a tint, to see where you are going. When dry enough, apply the gold leaf; all colors should be put upon slate dead, and varnish afterwards or polished.

One way to do it is by using a camel-hair pencil and gold size to trace the pattern or design, and allowed to dry until it becomes "tacky" to the touch, when the gold leaf is gently pressed on, and then carefully and lightly rubbed over with a piece of wool or wash-leather to remove superfluous gold.

LIFE THOUGHTS.

INDIGESTION and industry are two things seldom found united.

AN earnest man with love of children is rarely a bad teacher.

Good deeds are trophies erected in the hearts of men.

A JUST man ought to be esteemed in preference to a relation.

MANY a man dreads throwing away his life at once, who ehinks not from throwing it away piecemeal.

DESPISE not little temptations; rightly met they have often nerved the character for some fiery trial.

I WOULD give nothing for that man's religion whose very dog and cat are not the better for it, says an eminent writer.

A WISE man is not governed by the laws and ordinances of men, but is governed by the rules of virtue.

By temperance men become the most excellent, most happy, and fittest for discourse.

He learns much who studies other men, he also learns more who studies himself.

LOSS AND UNJUST GAIN.—Prefer loss before unjust gain; for that brings grief but once, —this forever.

SAID St. Simon: "If I consider myself I feel dejected; if I consider my fellow-men I feel proud."

YOUNG people should reverence their parents at home, treat strangers with courtesy when abroad, and respect themselves when alone.

A MAN that hoards riches and enjoys them not, is like an ass that carries gold and eats thistles.

He who buys too many superfluities may be obliged to sell his necessities. A fool generally loses his estate before he finds his folly.

TOWERS are measured by their shadows, and great men by their calumniators. That man who knows the world will never be bashful, and that man who knows himself will never be impudent.

Things Worth Forgetting.

How much wiser we would be if we could remember all the things worth remembering that occur day by day all around us. And how much better we should be if we could forget all that is worth forgetting. It is almost frightful and altogether humiliating to think how much there is in the common on-going of domestic and social life which deserves nothing but to be instantly and forever forgotten. Yet it is equally amazing how large a class who have no other business but to repeat and perpetuate these very things. That is the vocation of gossips—an order of society that perpetrates more mischief than all the combined plagues of Egypt put together. Blessed is that man or woman who can let drop all the burs and thistles, instead of picking them up and fastening them on to the passenger. Would we let the vexing and malicious sayings die, how fast the lacerated and scandal-ridden world would get healed and tranquilized. Forget the gossipings and bickerings, the backings and sneaking innuendoes and remember only the little gleam of sunshine and poetry that can illuminate the humblest life, if we only drive away and forget the clouds engendered by things that should never be remembered.

If you are a wise man, you may treat the world as the moon treats it—show only one side of yourself; seldom show yourself too much at a time, and let what you show be calm, cool and polished; but look at every side of the world.

THE line of conduct chosen by a young man, during the five years from fifteen to twenty, will, in almost every instance, determine his character for life. As he is then careful or careless, prudent or imprudent, industrious, or indolent, truthful or dissimulating, intelligent or ignorant temperate or dissolute, so will he be in after years; and it needs no prophet to cast his horoscope or calculate his chances in life.

"WHEN a stranger treats me with want of proper respect," said a philosophic poor man, "I comfort myself with the reflection that it is not myself he slights, but my old shabby coat and hat, which, to say the truth, have no particular claims to admiration. So if my hat and coat chooses to fret about it, let them; it is nothing to me."

Utah Smelting Works.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D.
Permanent Secretary of State Board of Health.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Scientific and Practical
BOOKS
—ON—
MINING, METALLURGY, ETC.
BY GUIDO KUSTEL,
MINING ENGINEER AND METALLURGIST.
Published and Sold by
DEWEY & CO.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.
As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.
Price, \$5 in cloth; \$6 in leather—coin.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.
This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver. 1870.
This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.
It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.
It is a work of great merit, by an author whose reputation is unsurpassed in his specialty.
Price \$2.50 coin, or \$3 currency, postage free.
For single copies of the above works, or for the trade, address
DEWEY & CO.,
Publishers and Patent Agents, Scientific Press Office
San Francisco.

7-30 GOLD LOAN
OF THE
Northern Pacific Railroad.
RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July last) is being pushed forward with great energy from both extremities of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 266 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September next this will be increased to at least 560.
A GOOD INVESTMENT. We are now selling, and unhesitatingly recommend, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 per cent. currency), and are secured by first and only mortgage on the ENTIRE ROAD AND ITS EQUIPMENTS, and also on
23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.
LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to their character as a first-class, prompt-paying Rail road security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.
SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed. The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their simple security and high rate of interest there is no investment accessible to the people, which is more profitable or safe.
EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 6 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.
OTHER SECURITIES—AGENCIES. All marketable Stocks and Bonds will be received at their highest current price in exchange for Northern Pacific Seven-Thirties. EXPRESS CHARGES on Money or Bonds received, and on Seven-Thirties sent in return, will be paid by the Financial Agents. Agencies for the sale of this loan are established in nearly every city and important town throughout the United States and Canada. Full information, maps, pamphlets, etc., can be obtained on application at any agency, or from the undersigned.
For Sale by
JAY COOKE & CO.,
Philadelphia, New York and Washington,
Financial Agents Northern Pacific Railroad Co.
By Banks and Bankers generally throughout the country.
mar25-13t-cow

WALTHAM WATCHES.

In soliciting anew the public patronage of WATCHES of domestic production, the AMERICAN WATCH COMPANY respectfully presents:
That no fact in the history of manufactures is more completely demonstrated than that the best system of making Watches is the one first established by them at Waltham. That system always had the warrant of reason and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been simple and satisfactory. It is admitted on every hand—the evidence of daily observation and common reputation—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing more is needed, but that their sizes, shapes and appearance should suit the tastes of the people. As to all these conditions the American Watch Co. are now fully prepared to answer the exactions of the market. They confidently assert there is no longer any need for such variety of finish and decoration, may now be had. And as to price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

The Most Economical as well as the Most Reliable,

And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the Latest Improvements in design and finish, and evince the rapid progress the Company is making toward perfection in the art. Among these the new small size Watch, for Boys and young gentlemen, is to be specially noted. A very low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the means of boys of all classes. Price being considered,

No such Watch, in Quality and Beauty,

Has ever, in any country, been produced.

The "CRESCENT-STREET" FULL PLATE WATCH, added during the last year, is now made either with or without stem-winding and setting attachment. This Watch, in either form,

The Company Challenges all Manufacturers of all Countries

To beat or equal for its price. It is made with all the latest improvements in every part—improvements which IMPROVE—and which not only make it better for its purpose as a timekeeper, but will make it the great favorite with Watchmakers. This, the highest grade of full plate Watches made in this country, in size and appearance, in finish, and general excellence, is especially intended for and recommended to business men, and in particular to Railway and Expressmen, to constant travelers—in fact, to all live men who must be told by their Watches the correct time of day whenever they want it. All such men should have the

"American Watch Co., Crescent Street."

Counting on such destination for this variety of their manufacture, the company devote the greatest care to its construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake upon its success.

For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

ROBBINS & APPLETON,

General Agents for American Watch Company, 182 Broadway, New York.

13t-sa

DEWEY & CO.
San Francisco.
Scientific Press
U. S. & Foreign
PATENT AGENCY.



Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KIBBE.
Mr. J. H. OLLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf

ENGRAVING
ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype plates of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.
DEWEY & CO.,
No. 414 Clay street, S. F.

Substantial Success Based on Merit.

THE

IRON WORLD AND MANUFACTURER

IS PUBLISHED WEEKLY AT

Pittsburgh, Pa.,

AND IS THE LEADING—IF NOT THE ONLY—REPRESENTATIVE JOURNAL OF THE METAL TRADES PUBLISHED IN THE UNITED STATES.

Located in the very centre of the metal interests of the United States, with offices and correspondents at the leading cities in the East, West and South, we do not err in claiming that it is the REPRESENTATIVE JOURNAL of the Metal Manufacturers, Workers and Dealers of this country.
THE IRON WORLD AND MANUFACTURER has a large and extended circulation throughout the United States, and is taken by Iron and Steel Manufacturers, Machinists, Founders, Hardware Dealers and Tanners, Gunsmiths, Plumbers, Cutlery Manufacturers, File Manufacturers, Saw Manufacturers, Boiler Manufacturers, and by

Leading Railway Officials.

It advocates protection to American Manufacturers. Its markets are full and reliable. If you are a manufacturer, take the journal that advocates your interests. Don't patronize Free Trade journals, but help those who help you.

With Free Trade the manufacturers of this country would be ruined. English gold is scattered with a liberal hand to further Free Trade. Expend some of yours to favor Protection.

If you advertise, which is the best medium? Circulation being equal, which would you patronize—a Free Trade journal or a Protection journal? Circulation is considered the value of an advertising medium. Much depends on the character of the circulation. The New York Weekly Tribune claims 200,000 circulation, and gets from two to five dollars per line for advertising. The Iron World reaches more people engaged in the metal business than the New York Tribune. Our rates are about ten cents per line. Which will pay the best? Sample copies mailed Free. Address

IRON WORLD PUBLISHING CO.,

No. 71 Grand street, Pittsburgh, Pa.



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Marble Falls Mining Company.—Location of Works: Mammoth District, Nye County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 28th day of March, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 4, No. 406 Front street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 22nd day of May, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
JAS. N. SUTVAM, Secretary.

Office, Room No. 4, No. 406 Front street, San Francisco, California. apl-1w

North America Consolidated Mining Company.—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 15th day of February, A. D. 1871, (also amount due by original owners on reserved stock) the several amounts opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A F Collins.....	16	666	33 30
A F Collins.....	40	166	16 60
Thos. Cassin.....	51	166	16 60
W Everson.....	14	666	33 30
W Everson.....	42	166	16 60
H C Hemenway.....	19	666	33 30
H C Hemenway.....	43	166	16 60
P F Mohrhardt.....	44	166	16 60
S Pinkham.....	20	666	33 30
S Pinkham.....	45	166	16 60
Goo R Spinnery.....	12	666	33 30
Goo R Spinnery.....	46	166	16 60
J A Steele.....	49	166	16 60
W J Taylor.....	48	166	16 60
A F White.....	4	1000	60 00
A F White.....	38	250	25 00
Thos Wells.....	6	1000	60 00
Thos Wells.....	39	250	25 00
W E Wood.....	55	166	16 60

And in accordance with law, and in order of the Board of Trustees, made on the fifteenth day of February, 1871, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Thursday, the 27th day of April, A. D. 1871, at the hour of 2 P. M. of said day, to pay said delinquent assessment, together with costs of advertising and expenses of sale, together with costs of advertising and expenses of sale.
W. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. apr-1

Noonday Silver Mining Company.—Location of works, White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of April, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the fifteenth day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
CHARLES E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. ap15-5w

Silver Sprout Mining Company.—Location of Works and Mines, Kearsarge District, Inyo County State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of March, 1871, an assessment of \$100 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, or stock in the company, at the rate of \$12.50 per share in like gold coin, to the Secretary, at the office of the company, No. 206 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 1st day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
T. B. WINGARD, Secretary.

Office, No. 206 Front street, San Francisco, Cal. ma25

Taylor Mill and Mining Company.—Location of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of April, A. D. 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of May, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 12th day of June, A. D. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
SAML S. MURPHY, Secretary.

Office, 521 Montgomery street, over Sather & Co.'s Bank San Francisco, Cal. ap22-8w

Yosemite Consolidated Mining Company.—Location of works, Santa Fe District, Lander County State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of April, 1871, an assessment (No. 4) of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 24 Merchants' Exchange, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the twenty-second day of May, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the nineteenth day of June, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees,
DAVID WILDER, Secretary.

Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. ap15-11a

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

(Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
21v17-47UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

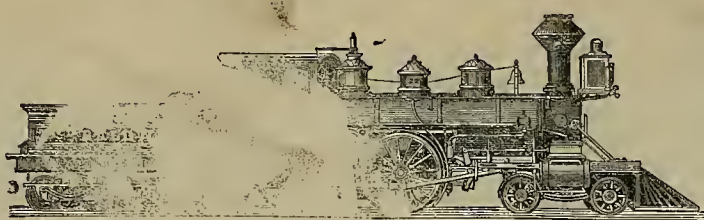
THE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in large quantities,Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable; it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 15v21-4f

California File Mannf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 8v18-47

BALDWIN LOCOMOTIVE WORKS.



Philadelphia,

MANUFACTURER

Especially

Mining

ALL WORK ACCU

PL

M. BAIRD,
GEO. BURNHAM
W. WILLIAMS, Bldg

LOCOMOTIVE ENGINES,

Variety of Railroad Use, including

lives for Narrow Gauge Railways.

AGES, AND THOROUGHLY INTERCHANGEABLE.

inish and Efficiency Fully Guaranteed

RY, WILLIAMS, WM. P. HENSZEY,
EDWARD LONGSTRETH.
nia street, San Francisco, Cal. apl-cow26tSTEAM
Engine etc

GIFFARD'S

INJECTORS.

BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.

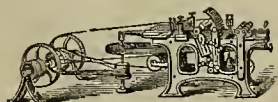
PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting.Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

The highest price paid for Scrap Iron 9v143m



RUSS PATENT

MONITOR MOLDING MACHINE,

MADE BY

R. BALL & CO., Worcester, Mass,

Manufacturers of the latest Improved Wood-working
Machinery for Planing Mills, Car Shops, Agricultural
implements, Furniture, Sash, Blind, and Door Fac-
tories, etc., etc. Send for Illustrated Catalogue and Price
List.

RICHARD BALL. E. P. HALSTEAD.

m4-cowly

The Stetefeldt Furnace.

For information of any description respecting [this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minun,

SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babblitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superlative. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
necting of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.
J. H. WEEB, V. KINGWELL.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, 318 CALIFORNIA STREET, San Francisco.
25v20-3mNELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v144STEAM JET PUMP.
Blakelock & Williams' Patent.—For
Water, Oils, Acids, Etc.The best cold water
pump for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.
We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS.—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARGON, Stockton. Can be seen at
McAFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4fFor
Steam Pipes
& Boilers
Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

MACHINERY

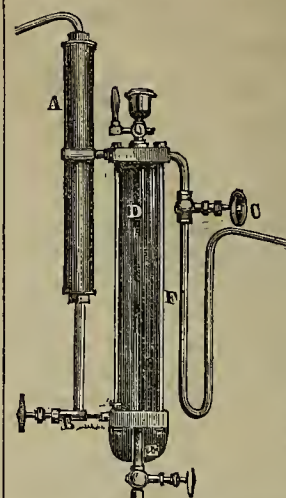
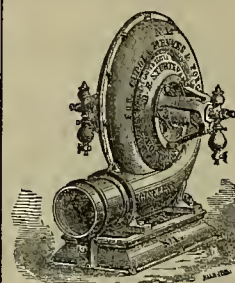
— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D, is a glass chamber which contains
the lubricant. O is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted syphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the election
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. 10v18-4f

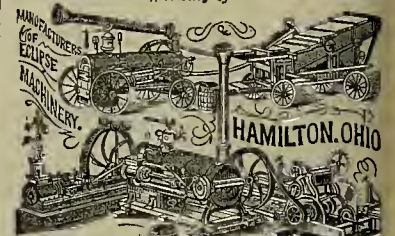
STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,
San Francisco,
who have the differ-
ent sizes always in
store. 4v22OWENS, LANE, DYER & CO.
MANUFACTURERS OF
The Eclipse Saw Mills,Combining THREE PATENTED Improvements
Essential to The Well
Working of Circular Mills.WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.

With the celebrated

STEAM THRESHER, "California Chief."

For Description, Prices &c. address them at,

HAMILTON, Ohio, or ST. LOUIS, Mo

GEO. T. PRACY'S
MACHINE WORKS,
109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-

ing Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS.

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

TRAVIS & WAGNER!



AGENTS FOR

Dufour & Co's.,
Celebrated Dutch
Anchor brand Bolt-
ing Cloths; Smut
Machines; Bran
Dusters; Mill Picks;
Mill Picks dressed;
Millstones repaired
rebuilt and bal-
anced.

MANUFACTURERS OF
French Burr Mill
Stones, Portable
Mills of all sizes,
Rolls, Paints, Drugs, &c. Mills specially adapted for
grinding Quartz.

41 First st., San Francisco.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee
that the purchasers shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains,
from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and
repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

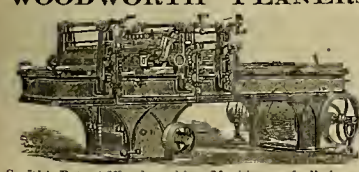
DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its
merits. One can always be seen at the Pacific Iron
Works.

Ten of these Mills are now in operation.
For further particulars address

FURMAN R. WILSON,
San Francisco.

WOODWORTH PLANERS



Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents,
BERRY & PLACE,
112 and 114 California street, San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces. —
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco
221-4f

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for
saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and
Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles
of Gold, 20v21-4f

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

Oriental Powder Co.,

MANUFACTURERS OF

Blasting,

Mining, and

Sporting Powder,

Of superior strength and cleanliness.

Patent Compound for Blasting
and Mining.

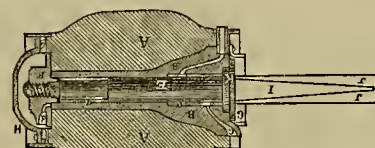
Electric Batteries, Fuses, and
Leading Wire for Blasting.

Address

A. W. TAYLOR, Agent,
Corinne, Utah.
Send for Circulars. 18v21-1am21

CARLES R. DONNER'S PATENT

IMPROVEMENT IN



HUBS AND AXLES

This new patent is for an improved manner of uniting
the steel spindle, I, with the iron portion of the axle, J,
with the double collar, K, and also in the formation of
a sort of hub on the holding-nut, F, which hub can be
shortened so as to bring the nut closer, and thus com-
pensate for any end wear of the box; also in the use of
secondary steel boxes, A, within the main axle-box, B,
and a series of oil-cups, C, arranged on the hub and an
outer nut, which opens at various points within the
box. A cap and protecting-ring are secured at the outer
and inner ends of the hub, respectively, to protect from
dirt.

An operative model and full description are necessary
to show fully all the merits of the invention. The pa-
tente can prove the value of the invention from actual
working; that it is an easy mode of construction and
furnishes a durable and more complete hub and axle
than any other that has yet been devised.

The attention of Manufacturers is solicited. All per-
sons are cautioned not to infringe on the above patent
under penalty of the law.

CARLES R. DONNER, Inventor and Patentee,
ap13ym Sonora, Cal.

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,

ENGINEERS AND BUILDERS.

New Bridges, Viaducts, Roofs, Etc.

Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-ly

Ahead of the World.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE
SEWING MACHINE.

With it any lady, however delicate her health may be,
can run the Machine from morning until night with
perfect impunity.

The Howe is the Best,
Consequently the most Popular Machine in use. The
Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,
ap15-3m No. 113 Kearny street, San Francisco.

SONORA HOTEL,

T. BRODIGAN,.....Proprietor

Best Meals and Beds in Sonora, Cal. fe25-3m

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.

A circular containing a full description of this Powder
can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE
Ransom Patents, the most perfect SANDSTONE, speci-
mens of which may be seen in the ornamentation of
Dr. Stone's Church, now in course of erection, at the
corner of Post and Mason streets. For architectural,
ornamental and mechanical purposes, this stone sur-
passes all natural stone of its class.

SANDSTONES from this factory, which we make of
any desired size, may be seen at many of the great
mechanical shops in this city, where they are held in
high esteem.

The factory is now turning out Architectural Stone,
Cemetery Stone, Grindstones, Garden Ornaments, in
the way of Vases, Fontains, etc. The nature of the
art admits of our moulding the stone in any desirable
form, and enables us to compete successfully with all
natural stone wrought by hand. In England, where the
stone has been manufactured largely for the past fifteen
years, it is considered, for durability and strength, to
surpass the best English Sandstone. The British
Government employs it largely in its public buildings,
both at home and in its Colonies, and as we have se-
cured the services of MR. ERNEST L. RANSOM, late
Superintendent of the home works at Greenwich, Eng-
land, we are turning out stone fully equal to the English
standard.

For particulars, apply at the Factory, corner Turk and
Larkin streets. ma18-4f

A NEW ARTICLE.

Composition Pipe for Conducting Water.

The attention of Railroad Companies, farmers dairy-
men and others, is called to our new Pipe for leading
water. It is lighter than ordinary lead pipe, and much
cheaper than iron. It will stand a heavy pressure, and
deliver about one third more water than iron pipe, pro-
vided the sizes are the same.

We are now manufacturing all sizes, from half-inch to
two-inch, and can fill large orders at short notice and
put on reels for shipment, the same as lead pipe.

Samples can be seen at our office.

No. 116 California Street,

THOS. H. SELBY & CO.

ap1-1m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone
Complete for \$1,200.

FOR CORN MEAL, WHEAT FLOUR-
ing and Stock Feed, Bolts, Smut-
ters, Corn Shellers, Flour Cap-
pers, Hominy Mills, Belting, Picks
and Mill Work generally.

SEND FOR DESCRIPTIVE PAM-
PHLET.

ISAAC STRAU & CO.,
Cincinnati, Ohio.

The Illustrated Excelsior Magazine

Has been reduced from \$2.50 to \$1.00, and is now one of
the CHEAPEST in the world. The illustrations alone are
perhaps worth more than the cost, and the beautiful
STEEL ENGRAVING of Evangeline (postage, etc., being
sent) is given. Size of paper on which the steel en-
graving is printed is 2 feet by 19 inches. The Magazine
contains Stories, Pictures, Puzzles, Music, a Lady's
Department, with illustrations of ladies' patterns; a
Youth's Department, etc., etc.

I hereby specially offer the Magazine for One Year,
this splendid steel Engraving, for the regular sub-
scription price, \$1.00, and 8 cents for postage and pack-
ing of engraving on rollers. Sample copy 10 cents.

Address the Publisher, C. L. VAN ALLEN, 171 Broad-
way, New York. ma25-4f

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY
GIVEN, that BETTS'S NAME is ON EVERY CAPSULE
he makes for the principal merchants in England and
France, thus enabling vendor, purchaser, and consumer,
not only to identify the genuineness of the Capsule, but
likewise the contents of the vessel to which it is applied.

The Lord Chancellor, in his judgment, said that the Cap-
sules are not used merely for the purpose of the ornament,
but that they are serviceable in protecting the wine from
injury, and insuring its genuineness.

MANUFACTURERS:—WHARF ROAD, CITY ROAD, LON-
DON, AND BORDEAUX, FRANCE.

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical
CHEMIST,

No. 611 Commercial STREET,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.
4v16-3m

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters,
Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practi-
cal instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory. 11v21-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Ap-
paratus to our establishment, we are now prepared to
make working tests by any process, assay ores and pro-
ducts. Returns guaranteed. Answers to all metallur-
gical questions given. 26v21-3m

JOSEPH GILLOTT'S

STEEL PENS.

Sold by all Dealers throughout the World.

STOP PAYING RENT.

San Francisco Co-operative Land and
BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern
Building Associations.

MONTHLY INSTALLMENTS.....\$2.50
PURELY MUTUAL.....Interest, 6 per cent. per year

Subscription Book now open. Prospectus may be
obtained at the office, No. 306 Montgomery street.


GEO. W. BLAKE, President; L. L. BULLOCK, Vice-
President; E. C. MORTON, Treasurer; H. B. CONG-
DON, Secretary. ap1-3m

E. J. FRASER, M. D.,

SURGEON,

No. 108 Stockton Street, S. F., Cal

Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CATYOTES,
and other "Varmints."

This Trap, as may be seen, is of simple construction,
not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children.

THE CHEAPEST AND BEST YET INVENTED. Price
50 cents. By mail, prepaid (to places where expres
charges are high), \$1. A liberal discount to clubs o
dealers who buy by the dozen. Address the invento
and manufacturer,

D. V. PHELPS,
San Leandro, Alameda County, Ca
a1-ly-awlp

DEWEY & CO.,
American and Foreign Patent
Agents, Publishers of
the Scientific Press,
San Francisco.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments made and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secure, with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

Models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will always be as low, and in some instances lower, than those of any other responsible agency.

We can and do get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country) sooner than any other agents.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has frequently happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency. The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communications and business transactions will be held strictly confidential by us.

Engravings.

We have superior artists in our own office, and all facilities for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular and other printed illustrations, and are always ready to assist patrons in bringing their valuable discoveries into practical and profitable use.

DEWEY & CO.,

SCIENTIFIC PRESS AND PACIFIC RURAL PRESS
Office, 414 Clay street, San Francisco.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

ap8-3m

G. W. OSBORN, } Agents.
C. F. BROWN, }

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tullie's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cutting both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BROS. & CO. and LIPPENCOTT & CO. Also, SHOVELS, AXES AND SPADES.

All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
1141-164-tf Pittsburgh, Pa.

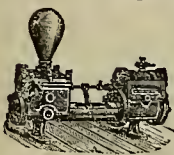
BAIRD'S BOOKS

FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,

112 California st., San Francisco. 4v22

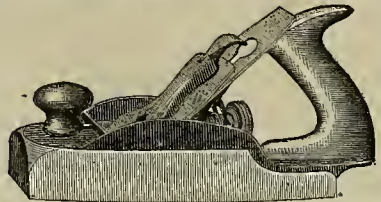
BAILEY'S PATENT ADJUSTABLE PLANES.

Over 6,500 Planes Sold in 1870.

Every Carpenter, Cabinet-maker, Car-builder, or other skilled Wood Worker, will find it economy to use these Planes.



"The BEST PLANE now in use." CHUCKERING & SONS,
Piano Forte Manufacturers, Boston.
"Superior to any others used in this shop." W. S. Towns, Master of Car Repairs, Hudson River R. R. Co.



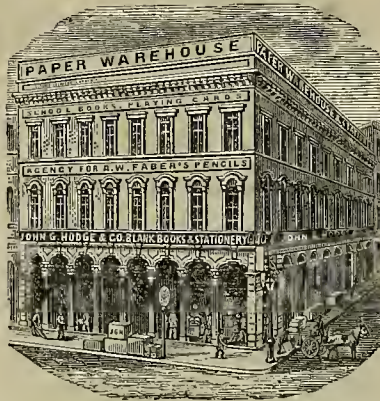
"Works splendidly on our Yellow Pine."
H. C. HALL, Jacksonville, Florida.
"We have Bailey's Planes in our factory, and there is but one opinion about them—they are the best and cheapest tool we have ever used. Good tools are always the cheapest."
JOSEPH BECKHAUS,
Carrriage Builder, 1204 Frankford Road, Phil'a.

Manufactured by the STANLEY RULE & LEVEL CO., New Britain, Conn. Warehouse, 55 Chambers street, N. Y. Sold by all Hardware Dealers. Send for Descriptive Catalogue, embracing a full assortment of both the Iron and Wood Planes. ap22-3w

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS,



KEEP A LARGE STOCK OF

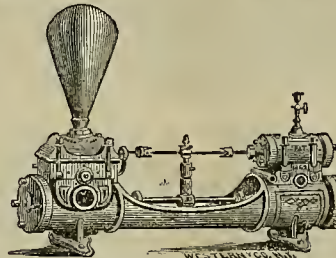
Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

Blank Books made to order from Crew
Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
Agents for A. W. Fahner's genuine Lead Pencils.

327, 329 & 331 Sanson St. [San Francisco.
19v21eomly

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Sold on a Steam Packing for Stuffing Boxes. All kinds
new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

RIDER'S

Automatic Cut-off

Vertical Engines

Manufactured by the

Albany St. Iron Works,

NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-1y16p

MAGAZINES.	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godey.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	
Petersen's.....	3 00
Arthur.....	
Lady's Friend.....	5 00
Harper's Weekly.....	
Chimney Corner.....	
Literary Album.....	6 00
London Society.....	
All the Year Round.....	15 00
London Ill. News.....	

W. E. LOOMIS,
News Dealer

AND STATIONER,

S. E. corner of Sansome and

Washington streets,

SUPPLIER ALL

Eastern Periodicals,

BY THE

Year, Month, or Number.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,

Civil and Mechanical Engineer,

519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-tf16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liqueur, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Copper
Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Gloves, Steam Whistles. HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe furnished
with Fittings, etc. Coupling Joints of all sizes.
Particular attention paid to Distillery Work. Manufacturer
of "Garrett's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COPPER
AND BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market,
MANUFACTURERS OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and
economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE. Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

Pacific
Insurance Company
No. 122 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coins.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

O. J. KING, B. KIMBALL, P. D. CODE.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,

KETCHUPS, SAUCES,

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,

Between Jackson and Pacific, San Francisco. [16p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 29, 1871.

VOLUME XXII.
Number 17.

Combined Roasting and Smelting Furnace.

The peculiar conditions of metallurgy in our country, where, with what would anywhere else be considered enormously rich ores, there yet exist high prices of labor, freight, fuel and of everything, in short, connected therewith, are calling into play the inventive talent of our mining community and are bringing out the most varied devices.

Among those who have set to work in this matter, Messrs. Gerrish and Hinkle,

Fig. C, an end view; and Fig. A, a horizontal section (of a part of) their furnace.

The ore is carried by a screw-conveyor, *p*, from the battery to the furnace, and by an elevator, *o*, to the top of the shaft. Here it falls into a hopper and is fed into the shaft by a peculiar device which we have previously mentioned. This shaft (a cast-iron shell lined with fire-proof material) has two fire-places, *l l*, (similarly constructed), and a short partition, *t*, the last to regulate the falling of the ore. In descending the shaft, the ore is to be roasted, any particles which here partially escape

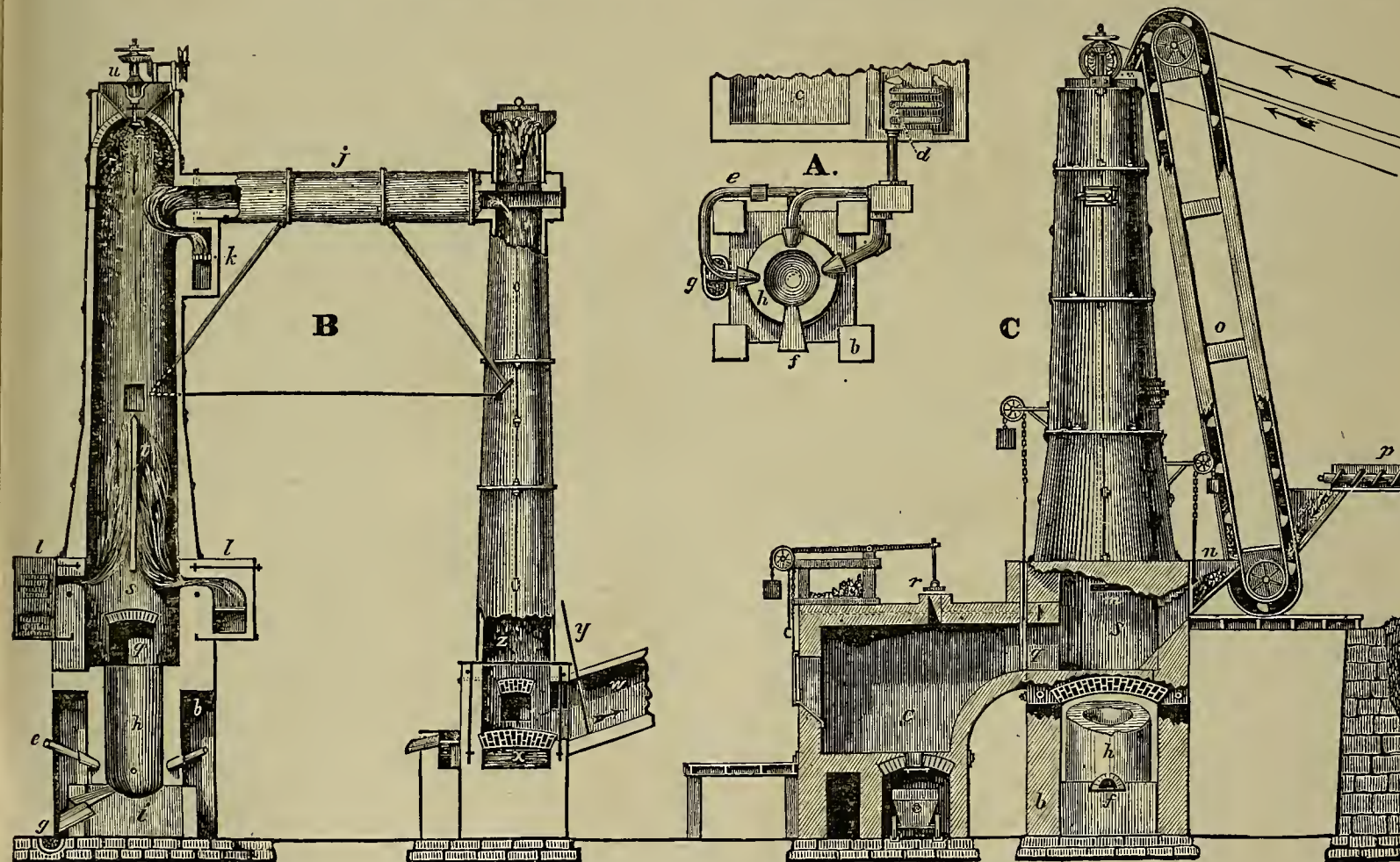
the Press.

An auxiliary chamber, *c*, may be added. Should it be desired simply to roast, as for amalgamation, the bottom of the shaft, *s*, may be closed in the manner denoted in Fig. C, and the ore allowed to fall into this chamber, whence it can be carried off in iron cars, as shown in the cut. The opening, *q*, into this chamber is hricked up when smelting is being performed. Again, if the ore does not require roasting, it can be fed directly into the smelting shaft from *n*.

The fumes, etc., pass through *f* into the

success. They are protected by a caveat, obtained through the SCIENTIFIC PRESS Patent Agency. Their names are G. M. Gerrish and Philip Hinkle; their address, Geo. Hearst & Co., 14 Hayward's Building. Mr. G. M. Gerrish may also be addressed at Salt Lake City, where he is engaged in preparations for erecting furnaces.

MAYOR POWELL, the Colorado explorer, has started on his second journey. He goes under the auspices of the Smithsonian Institute, there being an appropriate



THE GERRISH & HINKLE PATENT COMBINED ROASTING AND SMELTING FURNACE.

of this city, evince the greatest determination to solve the problems offered in our metallurgy. We have already described and illustrated several of their inventions. We now give another which, though similar in some respects to previous devices of theirs, has several novel points of importance.

The accompanying illustration needs but little description to make it clear. The plan is the result of studies to shorten the time and expense of extracting the precious metal from the ores. The inventors have boldly determined to perform the roasting and smelting in one operation. Fig. B shows a side view (and partial section);

the roasting action and are carried out by the draft, being thoroughly treated in the flue, *j*, by means of the auxiliary fire-place, *k*. The ore falls from the roasting shaft, *s*, (the one just spoken of) into the smelting shaft, *h*, the requisite materials for effecting the smelting being automatically introduced from *n*. The smelting shaft is built independently, in order to facilitate repairs, etc., and the roasting shaft and connecting parts are supported on plates, arches, or by similar means, resting on the pillars, *b*. The tapers are denoted by *e*, the metal pot by *g*, and the slag opening by *f*. If desired, the blast may be heated, at *d*, as described in a previous number of

shaft, *z*, through which falls a spray of water, condensing the condensable matter and aiding and regulating the draft. The reservoir below this shaft is denoted by *x*; the flue to the chimney by *w*; and a slide for still further regulation of the draft by *y*.

It will be seen that doors are provided at several places in order to get at and clean the various parts of the furnace, watch the process, etc. It will be seen, also, that no manual handling of the ore is required from the time it goes to the battery until it has passed through the smelting shaft. The plan is bold and novel, but the inventors feel confident of having effected a great

tion of \$20,000 for the expedition. The party are well supplied with instruments, hooks, and all that is necessary for a complete and accurate survey and exploration. They intend making a stay of two years.

THE HYDE STEAM WAGON.—The new steam wagon invented by Oliver Hyde of this city, this week hauled the huge capitol columns, each weighing 13 tons, from the Miners' Foundry to the Second street ferry landing.

THOMPSON ROAD STEAMER.—A correspondent of the *Ely Record*, writing under date of April 14th, says that a Thompson Road Steamer will be ready in 60 days for use between Toano and Pioche,

MECHANICAL PROGRESS.

A POWERFUL PUMP.—At the Glen Carbon Colliery, near Pottsville, Pa., is a pump of recent invention, which is thus described by the *U. S. Railroad Register* of April 8th: "There is a cast-iron pipe eight inches in diameter and three hundred feet long, cast in longitudinal sections and bolted together, each section being six feet in length. In the intervals between these sections are shorter sections, one foot long, constructed in the same manner, with bearings supporting a shaft made of steel, one and three-fourths inches in diameter, extending the entire length of the pipe. Mounted on this shaft, at intervals of three feet, are screw propellers, with two blades seven and a half inches in diameter, with an angular pitch of sixty-five degrees, and revolving with the shaft. Midway between these propellers, and attached to the walls of the pipe, are wings or blades of the same pitch and form as the blades of the propellers, but of a reverse angle. At the lower end of the elevator is a basket or guard of cast-iron to prevent stones, coal or other obstructions from passing into the pipe. The toy of the elevator has a spout or nozzle to direct the stream of water as it passes out, above which is a novel and ingenious contrivance to support the weight of the shaft, with its propellers and the column of water. There is a disc sixteen inches in diameter secured permanently to the top of the pipe, upon which rests a ring of brass twelve inches in diameter, on top of which is another disc fourteen inches, embracing the outer periphery of the brass ring. This upper disc is permanently secured to the propeller shaft. By means of a small donkey-pump water is forced between the two discs under sufficient pressure to slightly separate them, so that the top disc, propeller shaft, and column of water are supported by the film of water between them, and thus the rotation of the propeller shaft revolving on the water causes only a very small amount of friction. The donkey-pump receives the water from a small tank, and any surplus water forced between the discs raises the ring of brass, and is discharged back into the same tank. The propeller shaft is revolved by a wire rope passing around a groove pulley above the upper disc, and driven by a steam engine. * * We found by the indicator that the volume of water passed through was ten thousand and ninety-eight gallons per minute."

A NEW THING IN WEAVING.—The *Bureau* is enthusiastic in the description of a new loom which it says will revolutionize the business of weaving. We quote: "The inventor is a Mr. Abel, of Vermont, and he calls his new machine the *Weft-Thread Loom*. We have studied its construction and operations, and can say to the more than seven hundred woolen manufacturers whom we address by our journal, that it is a most remarkable invention, and has imperative claims upon their attention. One fact alone will demonstrate this. A first-class Crompton loom will weave thirty yards of cloth a day. A machine of the weft-thread pattern of the same class, will produce, of equally good fabric, *three hundred yards daily!* The Abel loom is simple in construction, and can be made of any size required. For cloth of ordinary width, the extreme dimensions are five feet by six, or thereabouts. The movement is easy—a lad of fifteen being able, by a crank attachment, to supply power for several machines. It makes no more noise than a Wheeler & Wilson sewing machine, and runs as easily. Its motion is that of knitting and weaving combined. The yarn is taken direct from the bobbins, which are placed in a semi-circular form, close up to and forming part of the frame of the loom. On these bobbins the yarn is wound with ease and speed, on a machine invented for the purpose by Mr. Abel. There is no dressing, beaming, spooling, or warping; no use for harness, reed, or shuttle. The warp or filling runs in from the same bobbin as the weft-threads, and the product of thirty yards per hour is so firm, strong and stocky, that it is almost impossible to rend it, and it cannot ravel; while in smooth, even surface it is the equal of any cloth we have seen made. To these advantages it adds that of economy in the saving of waste, to the extent of at least fifty per cent. over any other loom in use. Its simplicity of construction will make its repairs easy and of slight cost. With these advantages, the machine weaves also every variety of pattern in plain, fancy, ribbed and striped goods, and uses any material in

silk, cotton, flax or jute as well as of wool. In fact, the range of its production is from the coarse gunny cloth for cotton bales, to the most elegant cloths of our mills, East or West."

NEW WATER METER.—Fred. E. Bodkin, in a paper recently read before the Society of Arts, in London, upon the subject of "Water Meters," thus describes a new invention by Messrs. Cook and Watson:—"It consists of an upper plate, indented on the under side with a ring of thumb holes, and riding loosely in a chamber over a lower plate, through which inclined inlet holes are bored. The water rises through these holes, raises the upper disc, and, acting against the square ends of the thumb holes, causes it to rotate at the same time. This action, of course, requires some small power to commence, but as soon as the upper plate is lifted it must also necessarily rotate. When the supply ceases the upper plate falls, and forms a tight valve against the return of the water; and since, during its period of revolution, this plate floats in a film of incoming water, there are no wearing surfaces involved in the machine. Small stays are placed on the upper surface of the revolving plate, in order to produce regularity of motion under varying pressures, and appear, from the specimens I have at different times been enabled to test, to do so with complete success. These machines are not expensive, and offer but small opposition to the flow of liquid, and certainly appear to be the simplest and most practicable form of high-pressure meter yet invented."

PITTSBURGH MANUFACTURES.—"From a careful compilation of the statistics contained in the forthcoming census report, it is found that the cities of Pittsburgh and Allegheny, with their immediate suburbs, have a total of one thousand five hundred and fifty-seven manufactories of various kinds. Of these, the larger number are engaged in the production of iron or steel work, and in these branches a capital of \$26,692,686 is invested; the annual consumption of raw material amounting to \$14,734,883, and the value of the product being \$36,328,711. These establishments give employment to 15,541 hands. * * The entire manufacturing industries of the two cities represent a total capital of \$53,439,650, employ 33,635 hands, pay \$17,434,566 in wages annually, consume raw materials to the amount of \$35,338,099, and produce annually to the amount of \$78,239,933."—*Iron Age*, April 13th.

THE PERFECTION OF MODERN TOOLS.—"Not fifty years since, it was a matter of the utmost difficulty to set an engine to work, and sometimes of equal difficulty to keep it going. Though fitted by competent workmen, it often would not go at all. Then the foreman of the factory at which it was made was sent for, and he would almost live beside the engine for a month or more; and after easing her here and screwing her up there, putting in a new part and altering an old one, packing the piston and tightening the valves, the machine would at length be got to work. Now, the case is altogether different. The perfection of modern machine tools is such that the utmost possible precision is secured, and the mechanical engineer can calculate on a degree of exactitude that does not admit of a deviation beyond a thousandth part of an inch. When the powerful oscillating engines of the *Warrior* were put on board that ship, the parts, consisting of some 5,000 separate pieces, were brought from the different workshops of the Messrs. Penn & Sons, where they had been made by workmen who knew not the places they were to occupy, and fitted together with such precision that so soon as the steam was raised and let into the cylinders the immense machine began as if to breathe and move like a living creature, stretching its huge arms like a new-born giant, and then, after practicing its strength a little, and proving its soundness in body and limb, it started off with the power of above a thousand horses to try its strength in breasting the billows of the North Sea."—*Smiles on "Iron Workers and Tool Makers."*

CUTTING GLASS BY THE BLOWPIPE FLAME.—At a recent meeting of the Albany Institute, a member exhibited specimens of glass cutting by the use of the blowpipe, which is specially adapted to cutting tubes. The cutting is done by directing the point of the blue flame against the side of the tube. Instantly, a small check or crack is formed, which may then be led in any direction by directing the point of flame to the part to be cut.

SCIENTIFIC PROGRESS.

MORE OF ERICSSON ON SOLAR HEAT.—*Engineering* for March 17th has an article by Capt. E., showing that his calculations in regard to the temperature of the sun, based upon the indications furnished by his solar pyrometer, are corroborated by those based upon the indications furnished by an incandescent spherical radiator: although in the solar pyrometer, the radiator is only at boiling heat. We must omit the demonstration, but we quote a paragraph or two of the article: "Objections have, not unreasonably, been raised against my solar pyrometer on account of the low temperature employed. It is contended that unless the radiator is raised to the temperature of incandescence emitting luminous rays, the radiant heat transmitted to the focus will not furnish a true indication for determining the temperature of distant incandescent bodies. Numerous experiments, however, show that, relatively, there is no appreciable difference between the energy of the dark heat rays emanating from a metallic radiator of low temperature presenting a thoroughly disintegrated, or a blackened surface, and the energy of heat rays accompanied by a light, emanating from an incandescent metallic radiator. The temperature transmitted by the radiant heat to the focus is, in such case, directly proportional to the temperature of the radiant surface. Indeed, an air thermometer placed in the focus of a concave spherical radiator of ice, and surrounded with very cold substances, say 100° below zero, will furnish an indication by which the temperature of distant incandescent bodies may be ascertained with as much certainty as by employing a radiator heated to such a degree as to emit luminous rays. It scarcely needs explanation that my reason for constructing the solar pyrometer with a radiator kept at the low temperatures of boiling water, is that of admitting of operating within a vacuum, besides rendering it possible to measure the temperature with positive exactness. * * It is specially worthy of notice that the result of the experiment with the incandescent radiator corroborates the fact established by the solar pyrometer, that while gravitating energy depends on volume multiplied by density, radiant energy depends on area multiplied by temperature; both obeying the same law in traversing space, viz., diminishing in the inverse ratio of the square of the distances. In view of the foregoing statements and the demonstrations contained in previous articles on the subject of radiant heat, the correctness of our calculations fixing the sun's temperature at not less than 4,060,000° Fahr., cannot be controverted."

CHANGES IN WEIGHT BY OXIDATION AND REDUCTION.—Julius Thomsen shows these by the following lecture experiment: Cupric oxide is mixed with gum-water to a stiff paste and formed into cylinders, flattened on their sides, about a centimeter in diameter and three centimeters long. These are then dried, ignited, and reduced by hydrogen at the lowest temperature possible. A cylinder of metallic copper is thus obtained, very porous but sufficiently coherent to retain its form. These are wound with platinum wire, the two ends of which are melted into glass tubes by which they are handled. Two small tubulated glass bells are filled, the one with hydrogen, mouth downward, the other with oxygen, mouth upward, by displacement, the gases being allowed to flow slowly into them during the experiment. One of the copper cylinders is warmed to expel moisture, and immersed in the oxygen; it is raised at once to ignition and remains so until completely oxidized. It is then plunged into the bell-jar of hydrogen; it again begins to glow, the water formed runs down the side of the bell, and the cylinder is reduced to copper again. These combustions, the one in oxygen, the other in hydrogen, both evolving much light and heat, are very striking; and as the increase in weight of the cylinder by oxidation is almost a gram, it may be shown on an ordinary balance.—*Ber. Berl. Chem. Ges.*

EOZOON ONCE MORE.—Dr. Carpenter makes a final answer to Mr. T. Mellard Reade, in *Nature* for March 16th. We give the concluding paragraph: "Since I do not feel called upon to expend valuable time in giving to Mr. T. Mellard Reade the instruction which he requires to qualify him for discussing this question, I

now leave him to the enjoyment of his own opinion. Whenever he shall have shown, by work of his own, his competence to criticise the observations of others who have made a special study of the subject he discussed, I shall be most happy to afford him the same opportunity of forming his judgment as to the organic nature of Eozoön, by an examination of my preparations, that I have given to the many eminent naturalists, who have thus fully satisfied themselves of the justice of my conclusions."

NUCLEI PROMOTE CRYSTALLIZATION.—The *London Standard* says: "The singular action of nuclei in promoting crystallization has long been known, but recent experiments by Mr. Chandler Roberts, chemist of the Mint, have imparted additional interest to the subject. Minute traces of lead, antimony, bismuth, or arsenic render the alloy of gold and copper known as "standard gold," crystalline, intensely brittle, and totally unfit for the purpose of coining. This remarkable effect is produced even when the amount of obnoxious metal does not exceed the 1-1900 part of the mass of standard gold."

THE REALITY OF SPECIES.—In a communication to *Nature* for March 30th, D. Sharp says that among the many misconceptions that have arisen in connection with the doctrine of evolution, is one that species have no real existence. We quote: "It cannot be too distinctly insisted on that natural selection opposes no barrier whatever to the reception of the idea of distinct and separate species. That which it has destroyed is the notion of the constancy of species if the idea of time be set on one side. To argue that species have at the present day no separate existence because they had formerly a common origin, is a foolish confusion. The separate existence of a full-grown and mature animal is not questioned, because at one time it was a bud closely connected with its parent. In point of fact the question of species is really very similar to that of individuality, viewed as a question of origin, the individual and the species are both untenable ideas; but viewed at any one moment, both individual and species are among the most prominent and undoubted facts of our experience. Equally futile is it to argue that species have no existence, because we cannot exactly define what we mean by a species. It is well known that all the efforts of biologists have hitherto failed to produce a satisfactory definition of life. Are we, then, to conclude there is no such thing as a living animal? The evolutionist contemplates throughout the universe a power underlying all things, indestructible and infinite, most various in its manifestations, always changing and always shifting, but steadily in a given direction, not revealed to man as a separate existence, but known only by its changes and movements, and veiled under the form of matter. Side by side with this universal and unknowable force he sees an opposing power, a tendency in things and matter to be always as they have been, a tendency which the restless force has ever to overcome; but as soon as this has gained its victory, again is it subject to the grasp of its ignoble foe; the struggle, though becoming ever more and more one of detail, is no spasmodic one, though more revealed to us in some phenomena than in others, and more evident at some moments than at others. The questions of the origin, the existence, and the value of species in such a system are easily appreciated."

ORIGIN OF DIAMONDS.—The following is from *The Academy*: "Professor Morris has started a new theory as the source whence diamonds are derived. Hitherto they have been looked upon as coming from igneous and metamorphic rocks, like garnets, rubies, and many other precious stones; a better knowledge of the geology of the diamond district of South Africa, leads us to conclude that these stones come from certain stratified beds containing, besides reptilian remains, numerous plants and much fossil wood. These beds are known as the "Karoo" or *Dicynodon* beds. Professor Morris calls to mind the remarkable fact (well known to botanists and mineralogists) that in the stems of the bamboo small crystals of quartz are found, known by the name of *tabasheer*; he suggests, whether it may not be possible that the diamonds yielded by these old plant beds similarly owe their origin to vegetable growth."

CORRESPONDENCE.

Notes of Travel in Marin County.

[Written for the Press.]

San Rafael, the county seat of this county, is situated on the northwest corner of San Francisco Bay, 14 miles from the city of San Francisco; 10 1/4 miles of this distance is made by steamer (to Point San Quentin), the remaining 3 3/4 miles by railroad. Steamer fare, 50 cents; railroad fare, 25 cents. The town contains about 900 inhabitants, a prominent proportion of which are men of wealth, retired merchants of San Francisco. The valley in which this village is situated is about 10 miles long, and from 2 to 6 miles wide, and is considered the healthiest in the State. Until recently, one physician, Dr. Tolferro, did the entire business of the county, including the State Prison containing an average of over 1,000 convicts all the time; he now has an assistant in the person of Dr. DuBois, but their time is not all taken up, and is occupied principally upon diseases brought there. No fogs prevail here at any time of the year. The temperature for the spring and summer months does not vary over 15°, at any time. This place is accommodated with three hotels, and several fine boarding houses; of the former, the "Sheppard House" is just now undergoing repairs and receiving a complete new furniture outfit. The "Tamalpais Hotel," completed last month, is one of the finest in the State. Of its exact size I am not posted, but it is about 60x80 feet, three stories high, of modern architecture. This house can comfortably accommodate from 75 to 100 persons. The furniture throughout is of heavy black walnut, the entire cost of which (including the dining room, silver and linen), cost upwards of \$20,000. The hotel is lit throughout with "Maxim gas," which gives general satisfaction. Polite and attentive clerks and genial proprietors are in attendance. To those who can afford \$1.50 per meal, it is one of the best places outside of the city to spend their money in.

The points of resort near this place are Tamalpais Mountain, the "red woods," trout fishing (the best found in the State 5 to 12 miles distant), also huckleberries in large quantities, found on the mountains between Tamalpais and Olema. At and near the latter named point exist the finest dairies; at least, the finest hutter and cheese in this State are made here.

U. M. Gordon, Esq., capitalist, is now erecting a fine two-story brick building, 31x58 feet, at a cost of about \$15,000, for the purpose of starting a private bank here, to be in operation by July 1st, this year.

Nelson & Co., and A. McLeod, are the principal carriage manufacturers. The latter employs regularly nine men.

J. B. Rice, Esq., whose office is situated at this place—San Rafael—is manufacturing by contract 2,000,000 bricks annually, and from that upwards. The brickyards are situated some six miles distant. Some 15 men are regularly employed. There are two livery stables here, the most prominent of which the "Bay View" is kept by M. Murray, where the best of teams can be had at the cheapest rates.

A. D. Mailliard, of this place, is the owner of two of the finest stallions in the State, of which I give below a condensed pedigree of each. Young Eclipse is a dark bay horse, nine years old, 16 1/2 hands high, by Imported Eclipse, out of Imported Barbarity, dam of Ruthless, Relentless and Remorseless. He combines the blood of Bay Middleton, Web, Waxy, Camel, Touchstone and Whalebone on both sides. Stallion Monday is a blood bay horse, seven years old, 15 1/2 hands high, by Colton, out of the celebrated mare Mollie Jackson, by Vandal. He won the trial stakes at Jerome Park in 1866. In 1867, he won at Jerome Park, May 23d, a purse of \$700; at Patterson, New Jersey June 4th, the "American Derby" with 33 entries, beating all competitors; 2 days later, the "Sequel Stakes," 2 miles in a canter, showing in all his races great speed and extraordinary bottom. Colton, his sire, was one of the fastest sons of Lexington, out of Topaz, by Glencoe, the dam of Ansterlitz, Waterloo, Wagram, Lodi, Arcola. Mollie Jackson's victory at Woodlawn,

in 5:35 1/4—5:34 1/4—5:28 1/4, with full weights for age, stands yet as the best three mile race ever run in America.

Monday's grand-sire, Vandal, and his grand-dam, Topaz, being son and daughter of Imported Glencoe, unite in him to perfect the blood of that remarkable stallion. He is a perfect beauty.

Wm. T. Coleman, Esq., of your city, has invested at and near this vicinity (in lands alone) some \$200,000. He now possesses about 2,500 acres of land here. I advise all who have not already, to pay San Rafael a visit. L. P. MC.

High Mass in a Mine.

The *Overland Monthly* for May is good, very good. It has its usual number of stories, its descriptive articles concerning our coast, its wit and its wisdom. Its high rank is well sustained and the magazine is, if anything, more readable than ever. We clip the following, rather at random, from "On the Mexican Border."

In order that nothing might be neglected which tended to the good of the people, and the glory of God, High Mass was celebrated by the Bishop and his *cher ami*, in the Corralitos Mine. In this mine, far underground, the *peones* had carved out a large and lofty chamber, which they used as a chapel. Its altar and holy furniture were as showy and expensive as any above-ground, while the effect of the celebration of Mass in it was much greater than in any cathedral. It was the custom of the *peones*, as they entered the mine every morning with their families, each person carrying a lighted candle, to pause a few moments for prayer and singing in the chapel. Accustomed as I became to this daily spectacle, it never lost its charm for me. The singing of hundreds of voices, rolling and reverberating through the chambers of the mine, was echoed again and again from near and far in the most wonderful manner. The spectacle of High Mass in the Corralitos Mine was very impressive, and the singing of six or eight hundred sweet-voiced *peones* worth going a long way to hear.

PUNCH AND JUDY IN EUROPE.—One pleasant summer day, a few years ago, the writer of this article was standing with an officer of the Bavarian army in the Odeon Platz, at Munich, watching the entertaining performance of "Punch and Judy." At the most thrilling moment of the mimic tragedy, a slight movement among the spectators caused us both to look round; and to my amusement, and my military friend's dismay, we encountered the kindly eyes of old King Louis. Noticing the officer's confusion at being caught amusing himself in this rather unfashionable manner, the genial old gentleman pleasantly made him be at ease. "You need not feel ashamed to be seen here, Herr Lieutenant," said he, "I often stop myself to see the performance, and find it very amusing." He remained a few moments, laughing like the rest of the crowd at the droll mimicry of life exhibited in the little playhouse, and then, with a pleasant smile and word, withdrew. The incident was characteristic of the man and the people. While he stood there, no one took more notice of him than if he had been a private gentleman. There was no rude staring to which persons of exalted rank are always subjected by Englishmen and Americans. Every one quietly attended to the play until the King took his leave, when those immediately about him raised their hats with every mark of that esteem and affection which even his unfortunate infatuation for Lola Montez could not eradicate from the hearts of the Bavarian people.

The performance which old King Louis found so amusing, has not been naturalized in this country. It was exhibited for a short time at a popular place of amusement in this city about a year ago, but did not take sufficiently with the audience to induce the manager to go on with it. It was considered silly and stupid; and yet it may be made the medium of the most amusing whimsicalities. In Europe its popularity is unbounded. Even royalty, as just related, unhesitates to enjoy it; and we are told that so grave and dignified a personage as an English Secretary of State is certain to be, once paused on his way from Downing Street to the House of Commons on night of important debate to witness the whole performance.—From "The Story of Punch and Judy," in *Harper's Magazine* for May.

WHAT NEXT?—A "petrified whale" has been discovered in Los Angeles county, about 10 miles inland, near Aliso Springs. Petrified trees are at a discount.

Locomotives for Narrow Gauge Roads.

With the ready adaptation to new conditions, for which Americans are pre-eminent, the Baldwin Locomotive Works, of Philadelphia, have perfected arrangements for manufacturing locomotives for narrow-gauge roads, and have already turned out quite a large number. We have received from the proprietors, M. Baird & Co., photographs of several patterns of their engines, together with dimensions, weights, etc.

The Baldwin works have built and are building engines for roads of 2 ft. 6 in., 2 ft. 9 in., 3 ft., and 3 ft. 6 in. gauge, but find that the 3-foot gauge is the one in most favor. If a system of narrow-gauge roads is to be constructed in the country, it is manifestly important that a uniformity of gauge should be agreed upon. The 3-foot gauge is the one adopted by the Denver and Rio Grande road, besides others at the East.

We copy a few tables which are of interest now that the matter of narrow gauge is attracting so much attention on our coast.

WEIGHTS OF NARROW AND FULL GAUGE CARS.			
	Weight of Empty Cars.	Capacity.	Dead Wt. to Load.
1. 8-wheeled Box Car...	20,000 lbs.	20,000 lbs.	100
2. 4-wheeled Box Car...	4,500	5,000	65 1/2
1. 8-wheeled Flat Car...	35,000	24,000	65 1/2
2. 4-wheeled Flat Car...	3,500	9,000	38 3/4
1. 4-wheeled Coal Car...	6,000	11,000	60
2. 4-wheeled Coal Car...	4,000	8,500	47

1, Full Gauge; 2, Narrow Gauge.

Comparative Cost of Superstructure.

The following are comparative estimates of the cost of a mile of single track, properly proportioned for each gauge specified.

1st. For 4 ft. 8 1/2 in. Gauge. Rail 55 lbs. per Yard.	
57 Tons of Rails @ \$70.....	\$6,990.00
400 Rail Splices @ \$1.....	400.00
5,500 lbs. Spikes @ 5 cts.....	275.00
2,640 Cross Ties @ 80 cts.....	2,112.00
2,000 cu. yds. Gravel Ballasting @ 50 cts.....	1,000.00
Laying 1 Mile of Track.....	600.00

Total.....\$10,377.00

2d. For 3 ft. 6 in. Gauge. Rail 35 lbs. per Yard.	
55 Tons of Rail @ \$76.....	\$4,125.00
340 Rail Splices @ 60 cts.....	204.00
3,520 lbs. Spikes @ 6 cts.....	211.20
3,520 Cross Ties, 5 ft. long, 5 1/2 in. @ 40 cts.....	1,408.00
1,200 cubic yards Ballasting @ 50 cts.....	600.00
Laying 1 Mile of Track.....	350.00

Total.....\$5,993.20

3d. For 3 ft. Gauge. Rail 30 lbs. per Yard.	
47 1/2 Tons of Rails @ \$75.....	\$3,562.50
330 Rail Splices @ 50 cts.....	165.00
3,520 lbs. Spikes @ 6 cts.....	211.20
3,520 Cross Ties, 5 ft. long, 5 1/2 in. @ 30 cts.....	1,056.00
1,000 cubic yards Ballasting @ 50 cts.....	500.00
Laying 1 Mile of Track.....	300.00

Total.....\$5,794.70

4th. For 2 ft. 6 in. Gauge. Rail 25 lbs. per Yard.	
40 Tons of Rails @ \$75.....	\$3,000.00
330 Rail Splices @ 50 cts.....	165.00
3,520 lbs. Spikes @ 6 cts.....	211.20
3,520 Cross Ties @ 20 cts.....	800.00
1,000 cubic yards Ballasting @ 50 cts.....	500.00
Laying 1 Mile of Track.....	250.00

Total.....\$5,006.20

5th. For 2 ft. Gauge. Rail 20 lbs. per Yard.	
31 1/2 Tons of Rails @ \$75.....	\$2,362.50
330 Rail Splices @ 45 cts.....	148.50
3,520 lbs. Spikes @ 6 cts.....	211.20
3,520 Cross Ties @ 20 cts.....	704.00
750 cubic yards Ballasting @ 50 cts.....	375.00
Laying 1 Mile of Track.....	250.00

Total.....\$4,051.20

Cost of 4 ft. 8 1/2 in. track, \$10,377.00. Stand. road used.	
" 3 " 6 in. " 6,938.20. Reduc. 33 1/2 p. ct.	
" 3 " " 6,794.70. " 44 "	
" 2 " 6 in. " 5,005.20. " 52 1/2 "	
" 2 " " 4,051.20. " 60 "	

The Baldwin Works, we may say in conclusion, being alive to the fact that we are bound to have roads on the Pacific Coast, have established an agency here. Williams, Blanchard & Co., 218 California street, are the agents in this city.

FIRE-PROOF CLAY.—It is a fact not generally known that the stiff blue clay, which composes the famous east wall of the old Comstock ledge, furnishes a very superior article for the lining of furnaces. It is said to stand the intense heat brought to bear upon the lining of smelting furnaces better than the best of English fire brick. Some of the copper-smelting operators over at Walker river and elsewhere have used it with excellent success for some time past, and a day or two since we saw a load of it from the Savage, or some other mine in the vicinity, being hauled for use at a foundry on the Divide. The supply is certainly in inexhaustible, and sufficient to line the walls of any hot place here or elsewhere.—*Gold Hill News*.

COAL IN LOS ANGELES COUNTY.—About 40 miles east of Los Angeles, coal of good quality is reported as abundant, and is to be worked immediately.

TELEGRAPH LINE TO EUREKA.—Eureka, Nevada, has at last telegraphic communication, the line having been completed on the 10th of April. Congratulatory dispatches were sent to, and received from, various places on the occasion. The *Sentinel*, in commenting on the subject, says with regard to the place:—"A year ago there were a few miners living in the rocks and in tents where the town now stands, and two little furnaces producing from two to four tons of hullion per day, with two or three little stores and as many saloons. Now we have a place of over 2,000 inhabitants. We have fifteen furnaces, and almost as many more will be built within ninety days. We have over one thousand mines to supply furnaces and mills with ores, and the hase hullion product of the district is larger than that of any other district in the Union. We are on the nearest and most easily traveled line from the rich mines of Pioche, in Lincoln county, and the whole country of White Pine, to the Pacific Railroad, and Eureka is in the center of a dozen fabulously rich mining districts in this immediate neighborhood. With a certainty that the narrow gauge road will be completed during the present year, connecting us with the Central Pacific, and without doubt, doubling the present population during 1871, we hail the completion of the telegraph as one more step in the march of progress." We add our congratulations.

IRON ORE.—We took occasion in a previous number of this paper, says the *Elko Independent* of April 8th, to speak of the discovery of a rich and inexhaustible iron mine near this place, the locality of which, at that time, we were not definitely informed of. We have since learned that it is just across our county line, on the edge of Lander, and about ten miles from the railroad. It is not a mine in the common acceptance of that word, confined between casings and of a certain width, but a *whole mountain* of ore. It is of hematite variety, which we believe is rated among the very best qualities of iron. Some nine miles distant from this iron mountain, another large body of ore, known as magnetic iron, has been found, which is said to be of excellent quality, and from actual tests is pronounced to be equal to the best ores of the kind found in any country. Samples of ore taken from both mines, were sent to a leading iron expert in Pennsylvania, who, after a careful analysis of the ores writes as follows in regard to them: "Your boxes of specimen ores were received; the samples of the hematite ores are the finest I have ever seen, and much richer than any in Lebanon Valley. The magnetic ore will compare favorably with the Cornwall ore, and I see no reason why iron should not be made as cheap with you as in Pennsylvania." Here is an industry that never flags for the want of customers, as no metal enters so largely into the commerce of the world, or for which there is a steadier increasing demand by all nations and races than there is for iron. The time, we think, is not far distant when the reduction of iron and its manufacture into the various articles of commerce will form one of the great industrial pursuits of our young and prosperous State. With inexhaustible mines of silver and gold, with lead and the baser metals in abundance, with vast deposits of coal and iron, who can predict the future of Nevada?

ENORMOUS IMPORTATION OF SILVER INTO LIVERPOOL.—On Sunday, March 15th, there arrived in the *Mersey* one of the largest importations of silver that has ever taken place at Liverpool. The *Guion* Company's steamer *Wisconsin*, Captain Williams, which arrived that day from New York, had on board the enormous quantity of 65 tons and 5 cwt. of silver coin, principally Spanish and Mexican dollars, a large amount of which is intended for this country, and the remainder for different parts of the continent. As soon as the *Wisconsin* was secured at her moorings in dock, the work of getting the specie boxes ashore was commenced, and in a short time safely completed. Wagons were in readiness, and the specie was conveyed to the London and Northwestern railway station, where it was placed in 14 closed railway vans, and dispatched to London by an early train on Monday morning.—*London Standard*.

MINING SUMMARY.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, April 15th: The Globe is awaiting the arrival of the President of the Co. and some eastern owners, before making a regular working run.... The body of ore recently struck in the No. 3 tunnel of the M. & N. W. Co., still continues to pan out rich. This strike has caused unusual stir in town and appreciation of real estate.

CALAVERAS COUNTY.

RICH ROCK.—*Chronicle*, April 22d: Forty tons of quartz from the "Zambranna" mine, near Mosquito Gulch, yielded \$2,800, averaging \$70 per ton. The mine is owned by Hœrcher & Co., and has been worked, at intervals, for a number of years. The old Vance mill has been leased by the Co. They have out a large quantity of rock. The vein is about two feet in width and the rock all shows splendidly.

MACHINERY IN MOTION.—The arastra, Thoss' patent, at the Lewis Bros. mine near Railroad, is completed and commenced operations on Wednesday. The machinery works admirably and everything in connection with the mine is progressing favorably.

QUARTZ AT RAILROAD.—Poe & Co. have just finished crushing one hundred tons of rock in Clark's new mill. The quartz yielded \$1,800. We understand the ore was unassorted, everything being worked that was taken from the mine. Several other companies are hauling rock to the mill.

LOWER RICH GULCH.—The mills on the Palomo and Alexander mines are running day and night with good results.

SRUCK IT.—Bates & Co., who for the past year have been prospecting the old Mokelumne Hill Tunnel claim, in Chili Gulch, have at last struck very rich gravel. Ninety dollars were recently washed up: one man's work for five days. It is now believed that the former proprietors missed the main lead altogether, although they took out \$13,000 before abandoning it.

ELDORADO COUNTY.

GEORGETOWN.—Cor. of *Placerville Democrat*, April 22d: The Taylor Co. are nearly down with the second hundred feet of their shaft. They estimate that the ledge will be about thirty feet from the shaft at the bottom. If the ledge proves as good as the one hundred-foot level, the company will put up a twenty-stamp mill. The Eureka started up their mill again last week. They have made improvements to their machinery, and feel confident that they can save the gold. The Crane's Gulch Claim, owned by Whiteside, Stone & Watson, is reported to be paying well, but the parties are reticent. There is room for others to try their hands at mining. I am informed that the owners of the Clipper Mine offer liberal terms to any company that will take hold of it. This mine has come nearer paying for the work done than any in this section, and was worked at a time when very little was known about quartz mining.

INYO COUNTY.

CERRO GORDO.—Cor. of *Independent*, April 15th: The Front mine is turning out 10 tons of rich galena ore per day. Belshaw & Beaudry are taking out 30 tons per day through Buena Vista tunnel. The Ignacio mine, in the Lower Town of Cerro Gordo, is being worked again. The Omega Tunnel, Simson, Hoffman & Brady, near Belshaw's furnace, is in over 700 feet. The silver mines on the east side of the mountains are looking well, and yielding up their rich treasures handsomely. The Oceola have let their tunnel by contract to William Bastion, who expects soon to tap the ledge. The Friendship mine, Devlin & Co., is turning out fine ore. The Wittekind have not got in with their tunnel yet, but are pushing work vigorously. The San Lucas tunnel is progressing favorably, also the tunnel of Mr. Anderson and others, near the San Lucas mine. There is now on hand at the two furnaces between 5,000 and 6,000 bars of bullion, and the furnaces still manufacturing.

DEEP SPRING.—J. D. Hiskey writes, April 10th: We have the furnace completed and fired up, and will be in full blast in a few days. Will start the mill to-morrow. I worked 800 pounds of Paul's tailings through the pan without roasting and got about 60 ounces of amalgam.

MARIPOSA COUNTY.

ITEMS.—*Gazette*, April 21st: George Bernhard has struck rich rock in the Mt. Buckingham mine. He has just complet-

ed a tunnel eighty feet in length on the mine and found a vein two feet thick which shows gold freely. The mill will commence crushing as soon as the road will permit hauling. Mr. Francis, prospecting an old quartz vein in the neighborhood of the mine he is working, has found a well-defined ledge, the rock from which prospects nearly two hundred dollars a ton. The quartz now being taken out of the Whitlock mine is looking splendid. The mill has not yet started. The "Francis vein," situated 13 miles from this place on the Mariposa Creek, continues to pay handsomely.

NEVADA COUNTY.

STRIKE.—*Transcript*, April 19th: Strahan, Rolfe, & Co., at Cement Hill, have made a big strike in their hydraulic claims. In nine days, with modern appliances, they accomplished more than an older company did by the expenditure of \$50,000 in the opening of the claims. They have a good face on the hank, and from two pans of dirt, washed for prospecting the gravel, they took out ten dollars.

RELIEF HILL.—Same of 21st: The Union Co. is sluicing and preparing for drifting. The Eagle have their tunnels into good gravel and will commence drifting next week. The Welch is sluicing now after one clean up which yielded handsomely. The Great Eastern has found gold at the end of the tunnel and is preparing to drift. It has been demonstrated that a rich channel runs from Relief Hill to the North Bloomfield channel, and companies on the lead are preparing for work. The prospects were never better.

RICH.—Same of 22d: A lot of selected sulphuret rock from the Orleans, recently worked at Maltman's sulphuret works, yielded at the rate of \$110 per ton. This Co. has leased Stiles' quartz mill, and a crushing is being made of second grade ore which shows first rate. The Manhattan Co., had some sulphuret rock worked which paid over \$100 per ton. Some rock from the Banner mine, which had paid by mill process \$18, yielded at Maltman's \$80.

ALTA No 3.—*Grass Valley Union*, April 19th: We yesterday saw a sample of the blue cement from the claims of Alta Co., No 3, on Alta Hill. The sample, about the size of the fist, consisted of washed gravel cemented together. Grains of gold, very fine, ran all through the mass. The exhibition of the specimen caused considerable excitement. We are told that the gravel came from the northwest of the shaft and that the bed of it is so thick that the drift does not take in all.

NUCKET.—Same of 21st: Yesterday a man named Reese who is sluicing off old ground, near the Webster Co's, while resting, looked over the stones he had thrown from the sluice. He picked up a piece worth between \$400 and \$500.

BALTO.—The manager is pushing into the hill with all rapidity. When the "rim rock" is reached, the claims will have to be worked through a tunnel. The hill will be too high to work entirely off by hydraulic process. The Baltic is now washing, with fine results; the overflow of gravel from the old channel. The claims will last for years.

OTHER GRAVEL CLAIMS.—Webster Co. are drifting southwest from the shaft, and the bed rock is pitching down. The drifters have lost bed rock. The drift is rich in gravel, however, lumps of gold, and much fine gold being found. McSorley & Co. have quit pipping. They have run up as far as they can go in safety, until a flume is built across the cut. They do not want to cave off the ditch. Lumber for the flume is on the ground. The claims of Black and Landis at Goshen Hill are energetically worked. A heavy water power is being erected for removing large boulders.

SPECIMENS.—Same of 23d: Friday the North Star furnished the most beautiful specimens which ever came out of that mine. The aggregate value is between \$4,000 and \$5,000, but the gold does not alone constitute the beauty of the rock. Layers of sulphurets and gold, galena and gold go all through.

WEBSTER MINE.—Saturday 22d: The Webster made some good pannings. The drift is being run southwest from the shaft, and the bed rock had been pitching. An attempt to sink was made, but the water was heavy. A few pans of gravel were tried, however from the wet shaft. The yield was \$3 to \$6 to the pan. The gold is round and washed. The Co. now think that they have been taking gravel from a bar all the time, and that the real channel has just been found.

PLACER COUNTY.

THE DILLON MINE.—*Herald*, April 22d: The owners, Dillon, Cowan and Himes, had thirty tons of the quartz, just as it came from the ledge, crushed at the Empire

mill this week, which yielded, according to the estimated value of the melted gold, \$2,145 or over \$71 per ton. The first shaft sunk missed the main ledge, but they are now on it and down thirty feet where it shows well defined walls and is nearly three feet thick. From this thirty tons there had been selected seven hundred pounds which yielded about one dollar to the pound. This mine is in the Lone Star or Rock Creek District three miles north of Auburn. The owners are erecting hoisting works preparatory to a systematic development of the mine.

PLUMAS COUNTY.

A Taylorville correspondent of *Quincy National*, April 20th, says that Shinn & Co. have commenced work on the Montgomery copper ledge.

SAN DIEGO COUNTY.

BULLION.—*Union*, 20th: Pauly & Sons shipped to San Francisco per Sacramento, \$2,100 gold bullion from the Julian mines: of this \$800 was from the Helvetia.

SHASTA COUNTY.

NUCKET.—*Courier*, April 22d: This week James Vial brought into town a solid gold nugget which weighed fifteen ounces. The piece was taken out of Vial's claim on the East fork of Clear Creek. About four weeks ago Vial found another nugget that weighed seven ounces.

SISKIYOU COUNTY.

PAYING WELL.—*Eureka Union*, 19: Black Bear and Klamath mines are paying better than ever before. In the Black Bear the ledge on the lower level is larger, better defined and richer than in any above. The Company are running a tunnel which will strike the ledge seventy-five feet below the present level. They have run it nearly 700 feet, and have only 100 feet to go. The Black Bear intend to erect chlorination works during the spring. They are now making brick for the furnaces. G. W. Deetken, Supt. of the chlorination works of the Eureka Mine. Grass Valley, has been engaged to superintend the construction and starting of these works.

LIVE YANKEE.—This, the first quartz claim ever worked on Salmon, after remaining idle for many years, has come into possession of Daggett, Reed & Patton. The owners have changed the name to "Salmon." This claim paid well when it was first opened many years ago, but through bad management and high prices the company became involved and suspended work.

SIERRA COUNTY.

ITEMS.—*Messenger*, April 22d: Parties are at work opening the old Oregon tunnel.... The Bald Mt. tunnel is still in bedrock; work progressing finely.... Bliss, of Eureka, is piping away lively.... The Brush Creek Mine is still under attachment, and in the hands of a keeper.... Geo. Knoll has put up his steam pump at the lower end of Duran Flat.... The Live Yankee Co. are running for back ground supposed to be near the centre of the ridge between Forest City and Cumberland Ravine.... The North Fork Co. of Forest City have their tunnel in eleven hundred feet. They are running for the old Uncle Sam ground, and have one of the best tunnels in that section. Twelve hundred feet more will bring them into pay ground.

TRINITY COUNTY.

CANYON CITY.—Cor. of *Journal*, April 22d: Messrs. Flowers & Smith have commenced opening a claim on the lower end of Red Flat. It will be one of the best in the county. M. L. Knowlton talks of putting up a hydraulic on Petticoat Point. Wm. Guthrie will extend his ditch down the west side of the creek, as far as Rag Tail Bar, and perhaps lower down.

DOUGLASS CITY.—Cor. of same: Smith & Wallace, on Panwauke Gulch, have commenced cleaning up, with the following result: On Thursday, 21 ozs; Friday 40 ozs; Saturday, 12½ ozs; they have yet four days' work to do, and it is supposed that it will pay equally well.

JUNCTION CITY.—We learn that the miners are hard at work, and prospects are favorable.

YUBA COUNTY.

SUCKER FLAT.—*Appeal*, April 20th: The Blue Point Gravel Mining Co. have made their first opening clean-up through the bed-rock tunnel which they were four years in constructing, at a cost of \$146,000, washing up 100 boxes at the head of the flume, taking out over \$40,000; they also declare a dividend of \$80 per share.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Independent*, April 22d: The Independent has its shaft down 40 feet, and has driven a level 60 feet north. The vein is two and a half feet in width, and the rock will pay \$300 per ton.... Argenta has run into another rich chimney on a level with the tunnel.... Gould & Co. had 12

tons of ore from the Hamburg worked, that paid handsomely. It was first-class rock from the shaft, which is down 55 feet.... W. D. Walbridge will commence operations on the Monitor, within a few days.... The Norton and Vance mills are constantly at work.

ELY DISTRICT.

ITEMS.—*Record*, April 16th: The Meadow Valley Co. have erected a fine ore dump. Cars from the tunnel tapping the Summit Shaft are by trestle work run to the dump on the street. Western Extension started up on Friday. The shaft is down 150 ft., a whim has been erected, and business is meant. Wells, Fargo & Co. shipped from Pioche, Saturday, bullion, \$13,198.80 for the Meadow Valley Co.

MORE BULLION.—Same of 20th says W. F. & Co. shipped on the 16th and 20th \$33,991 for the same Co.

CHICAGO MILL.—We learn that this has been leased by Lew Hanchett. It will be overhauled before it again starts up and a Stetefeldt furnace built.

EUREKA DISTRICT.

FURNACES.—*Sentinel*, 22d: The Eureka Consolidated product for April will exceed that for March. The new furnace will be ready the first of next month, and then the company will make double the base bullion that can be made by any other establishment in America.... The Richmond is running on Richmond ore, and J. J. Dunne is getting large quantities of bullion of high grade.... The Roslin is constantly running, and the piles of bullion shipped attest the value of the Elise and Hamburg mines.... The Buttercup is running one furnace on Mountain Boy ore, and another is being repaired. The last month has been one of the best. The bullion is rich and the quantity great.... The Goewey & Hurlbut has been purchased by the owners of the Bullwhacker mine, and will soon be started.... The Jackson furnaces are lying idle, but we presume will soon be doing duty.... The Taylor furnace is still idle, but arrangements are being made to put it to work.

HUMBOLDT.

ITEMS.—*Silver State*, April 22d: Captain Comins of Dun Glen has about completed negotiations for the erection of a mill in the Gem Canyon, to work the ore of the Forlorn Hope mine which has lain idle for several years.... The owners of the Frost mine last week struck a pay streak which assays as high as a dollar a pound. The streak is ten inches in width.... The amount of bullion shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue was \$12,217.

ITEMS.—*Register*, 22d: The White mine still yields rich galena.... The Butte Co. will be working ore in their new mill by June 1st.... The Trenton has been sold to a San Francisco company for \$75,000.... The Meredith shows a ten-foot ledge of good ore. They are running a tunnel at water level. Ten feet farther to go.... Palmer & Boyer Bros. have run a tunnel 45 feet and tapped the Black Hawk ledge 50 feet from the surface. The vein is 18 inches thick.... The Buena Vista are taking out lots of rich ore.... The King William looks splendidly.... Work progresses on the Talulah at Dun Glen.... L. D. Webb has shipped 20 tons selected ore from Second South extension of the old Golconda mine to Rye Patch mill.... A four-foot ledge of fine ore was struck in the Jefferson ledge at the depth of five feet.

WASHOE.

CHOLLAR POTOSI.—*Enterprise*, April 23d: The condition and prospects are good. For the week ending April 22d, the Co. have extracted 1,798 tons of ore and forwarded to mills for reduction 1,891 tons, the average assay of which has been \$75.40. The amount of bullion shipped for the week was \$57,273. During the week a drift south from the Belvidere body has got apparently into a new body of ore, at least ten feet wide.

DANEY.—The drift from the bottom of the main shaft, 300 feet in depth, is in 190 feet. The rock is becoming softer.

OPHIR.—The cross-cut at the top of the "up-rise," (300 feet up) has passed through the clay, but is not yet far enough into the vein matter beyond to enable one to form a decided opinion as to what it may contain. The rock does not present as favorable an appearance as could be desired.

OVERMAN.—About the same ore is being extracted.

CONSOLIDATED VIRGINIA.—The drift is progressing favorably, and the rock presents a promising appearance.

SIERRA NEVADA.—Both mills and all the works of this company are still shut down by the injunction obtained by the Kenosha Co.

SUCCOR.—Work is still being prosecuted on the air shaft 1,000 feet back from the mouth of the tunnel. The usual ore is being taken from the mine.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 11TH.

FILTER.—James Brown, San Francisco, assignor to Ira D. Thompson, same place.

SEED-DRILLING MACHINE.—Oliver Hyde, Oakland, Cal.

DOVETAILING MACHINE.—David Pomeroy, San Francisco, Cal., assignor to Elander Heath, same place.

MACHINE FOR SAWING STAVES.—Assaria Rewrick, San Francisco, Cal.

FLY BRUSH.—David Shankland and Emerson B. Hopkinson, Nevada City, Cal.

AXLE-GAUGE.—Richard K. Vestal, Santa Cruz, Cal.

OIL RESERVOIR FOR AXLE-BOXES.—Ernest Von Jensen and James Munroe McDonald, San Francisco, Cal.

MANUFACTURE OF PNEUMATIC GAS FOR ILLUMINATING, ETC.—John W. Stow, San Francisco, Cal.

REISSUES.

WHEELBARROW FRAME.—Beckwith W. Tuthill, Oregon City, Oregon. Patent No. 110,698, dated January 3, 1871.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

ANKLE-BRACE.—J. S. Niswander, Oakland, Cal. This invention, for weak, sprained or diseased ankles, applicable also for the cure of club or misshapen feet, consists of properly formed metal plates, made to fit the foot, ankle and leg, and united by a concave or cup joint which fits over the ankle joint. This device can be worn either next to the skin or on the outside of the stocking, the boot or shoe concealing it from view. As an instrument for surgical assistance in reducing sprains and supporting weak or broken ankles, it is of great value, and being convenient to put on and not uncomfortable to wear, will be used by many who object to the ordinary splints.

HYDRAULIC NOZZLE.—H. Shaw, Nevada City, Cal. Mr. Shaw's nozzle, for hydraulic mining, is connected with a water-chamber or distributor, by means of a peculiar (C-shaped) pipe. It has several improvements in construction, especially in its interior, so that the water which is forced through it, will be delivered without the twist given to it when the ordinary nozzle is used. Again, it is connected with a novel arrangement for turning it in any direction, vertical or horizontal, as may be required. The entire machine is so constructed that it can be put together without the necessity of using bolts, rivets or screws, thus avoiding the necessity of transporting it in bulk, as it can be put together at the place where it is to be used by any person without need of other instrument than a hammer.

GRINDING MILL FOR ORES.—J. S. Niswander, Oakland, Cal. The object of this invention may be said to be two-fold,—to obviate the necessity of using iron grinding surfaces, and thus avoid the trouble of getting particles of iron into the ore; and to be able to use in the construction ordinary stones or quartz rock taken from the mine. On an iron disk, rock is laid with as even an upper or grinding surface as possible, the stones being laid close together and the interstices filled with smaller rocks or broken fragments. This layer is kept in place by a ring, hinged on one side and fastened at the other in any convenient manner, so that it can be clamped tightly around the bed. The miller consists of a circular rim or shell, with or without a cover, divided into several compartments, in which are placed loosely large stones such as may readily be picked up at any mine. The ore is fed in at the center. These are the principal points, in connection with which are several details of construction, rendering the machine more sensitive and efficient.

Rearing Silkworms.

The following information, being the result of long and intelligent practical experience, will, we think, be found both valuable and interesting.

The Cocoony.

The building to be used as a cocoony should be regulated as to size, so as to accommodate the number of worms to be fed in it. One ounce of eggs is said to contain from 30,000 to 40,000; but we think 30,000 as many as will, on an average, hatch from the ounce. The smaller trevotine or bivoltine kinds may contain more than this number; but we think the larger annual kinds will fall short of it. Taking 30,000 as a basis we may easily determine the space required to feed the worms from any given number of ounces of eggs. One hundred and fifty worms of full age or growth should have at least one square foot of shelf or table room, and one ounce will therefore require 200 square feet, and this increased in proportion as the number of ounces of eggs to hatch is increased. No extra building need be provided for a cocoony if there is a barn or other building on the place that can be spared for use during the summer season. The shelving can be so put up that it can be taken down and laid away, and so kept from year to year. It is said that in many portions of Spain, and in other countries, sheep-hoods are used as cocooneries, and that the smell of old manure is believed to be of no detriment to the health of the worms, but rather a benefit. So a horse barn or hay barn can be cleaned out and used without danger to the worms.

Ventilation and Temperature.

One important matter in fixing up a cocoony is to provide the means for plenty of ventilation. There should be an opening at the highest point to let the bad air escape, and openings at the bottom to let in fresh and cool air; and these ventilators should be fixed so as to regulate the circulation of air at pleasure. There should also be some handy way to wet down the floor (and this may be either boards or well-packed earth) in hot, dry and still days. The evaporation of water judiciously used may be made to keep down the heat two or three degrees in the building below what it would be without the use of water.

Though this is one of the most even or uniform climates in the world, yet the changes of temperature between the nights and days, especially in the open valleys and in the summer season, are greater than in many other countries. Indeed, this regular daily change of temperature is one of the greatest difficulties, in our opinion, with which our silk growers have to contend. With our generally even temperature, if we could dispense with this daily change our climate would be perfect. In this respect the foot-hills have a great advantage over the large open valleys.

To counteract this difficulty many propose building brick or adobe cocooneries. This expense is unnecessary, nor do we believe a brick building good for the worms. The atmosphere in a thick walled, brick building accumulates too much chilling dampness, which is as detrimental as the changes of the temperature. A double wooden wall, with a false roof, would secure all the advantages and be liable to none of the objections to brick. But the same object can be much more cheaply and as effectually secured by covering the sides and roof of the cocoony with tules. The tule makes a covering of the best non-conducting properties. Neither the sun, the wind nor the dampness of a rainy day will penetrate a wall of tule a foot thick. The southern and western sides of the building and the roof only need be covered. The sun should always be allowed to strike the east side of the building early in the morning. It will shorten the time necessary to carry the worms through to cocoons from two to three days, and give them more certain health and better results. Two men can cut tule and cover a building fifty feet square, if they be handy, in two or three days. We speak in reference to this kind of covering from experience.

Artificial Heating.

With respect to artificial heat in a cocoony there are many opinions. In this dry climate we all know that the degrees of heat and cold are not as sensibly felt by the animal system as in a more damp climate. The dry air is a poor conductor of heat; but a damp atmosphere, on the contrary, becomes a good conductor, and hence, in a damp climate we feel the changes of heat and cold much more readily. So with the silkworm. We should take these facts into consideration

when determining the question of artificial heat for our cocooneries.

We think it may be well to have the facilities for heating at hand; but use them only sparingly. We would prefer that the thermometer should not fall below 60 nor rise above 80 degrees in the cocoony. If it could be kept at the mean of 70 degrees it would be better. If the thermometer falls below 60 degrees and remains any length of time, it may be best to use a little fire. But if it only gets down to that figure in the latter part of the night, to rise at the approach of the sun, we would not start the fire. The Chinese on such occasions use a quick charcoal fire which they carry through the building in a furnace. Heating by an open fire or blaze, as in a fire place, is much better than by a close stove.

Hatching the Eggs.

Silkworm eggs will not hatch as a general thing with the thermometer below forty-five degrees. We say generally, because the bivoltines will hatch at a considerably lower temperature than annuals, and Japanese annuals will hatch at a lower temperature than French annuals. If your eggs have been kept in a place below forty-five degrees, and you wish to have them ready for hatching in about ten days, change them to a locality where the temperature remains at about 50 degrees, and in a day or two increase the temperature to about 60 degrees, and then up to seventy, and keep it at this point until they begin to hatch.

Two or three days before hatching, you will notice the eggs changing color from a brownish state to a grayish blue, and the day before hatching to quite a light blue. The worms hatch from six to ten o'clock in the morning, and when you see the little fellows coming out, cut up some tender leaves in narrow strips and lay them around the edge of the paper to keep them from crawling off, also some through the center. As the worms get out of the eggs they start immediately for the leaves and begin to eat.

At about ten o'clock take hold of the strips of leaves carefully and lay them close together on a clean paper upon which you intend to feed them. It is better that the worms be pretty thick when small—so thick that the leaves upon which they rest will look black with them. When you have thus moved all the worms from the eggs, in this manner, cut up some tender leaves, very fine, and sprinkle them over the worms. They will immediately leave the dry strips and go for the fresh cut leaves. Mark the worms, or the paper containing them, the day of the month, and feed them a little once in about five hours during the day time, and if the nights are sufficiently warm, so that they continue to eat all night, keep the feeding up all night; but if the nights are cool, let them miss one feeding in the middle of the night, and then again at four o'clock.

Repeat the process of taking the worms from the eggs each day for about four days, and then throw away those that have not hatched, as they will not probably be very good after that. Be very careful to keep each day's hatching by itself, and keep the papers on which you place them separate, so they will not mix, as this will save a great deal of trouble in the future changes of the worm. Keep up the feeding with finely cut leaves each four hours, being careful not to feed them much more than they will eat until the worms are four days old.

First Molting.

At this age their heads and the foreparts of the body will be a grayish color, and if the temperature has been kept up to about 70 degrees they will probably begin to lose their appetites, preparatory to going to sleep, but if the temperature has been a little lower than 70 they may eat, on the fourth day, more ravenously than on any previous day, and their sleepy time may be delayed until the fifth day or even to the sixth. When they stop eating, stop feeding; as, if you continue to feed them, you will bury them up with cold, damp leaves and thus lose many of them. They will sleep from twenty-four to thirty-six hours, and sometimes forty-eight hours. In this time their bodies shrink and the skin separates from the little black cap that covers the head, the cap falls off and the worm wakes up and crawls out of his skin. This is called molting. When they have thus molted and waked up they are very hungry, but don't feed them any till all the worms on the paper have molted. Be very particular about this so as to keep them all of the same size and so that when they go to sleep the next time, which they will do again in about five or six days, all will sleep and wake at the same time.

By being very careful to keep the worms of the same day's hatching separate, and

thus keeping each day's hatching uniform in size, and putting them all to sleep at the same time, before each molting, much work is saved, and the worms will do much better all through their lives. We should have mentioned that as the worm approaches the time for going to sleep, it changes its color, always looking a yellowish sickly color at that time; and when it fully stops eating, it fastens itself to a piece of a leaf and seems to be stiff and almost lifeless. In this condition they should not be moved or fed or disturbed in any way, but left entirely alone. When going to sleep, also, many of them get down under the surface leaves, so that you can see but few of them on the top. When they have molted, their color is changed and they appear on the surface again and move about in search of food.

A REAL YANKEE IDEA.—Under this heading, the *Arbeitsgeber* gives the following: In order to make dollars, the American inventor exercises his brain mightily, and leaves no working process unstudied, in order to see whether one cannot, by means of some improvement, or by a new method, economize in time and labor, and lead into his own pocket a part of the economy in the shape of money. It is well known that the skinning of cattle takes considerable time. An American has proposed a plan for shortening the process, which will be of considerable importance for large slaughter-houses. The speculative experiments on this subject have arisen naturally where the necessity urges—in the Pampas of South America, where many animals are killed merely for the sake of the hides. The inventor's proposition is to force air by means of an air pump, between hide and skin, thus separating them. We have not yet been informed whether the thing has been put in practice. It is certainly worth the trial.

A NEW GOLD SAVER, says the Nevada *Transcript*, has just been completed by Thom & Allen, at the foundry in this city. It is called Johnson's Batea Separator and Amalgamator. It receives the pulp as it comes from the battery and is designed to save the powdered mercury and gold which escapes from the coppers of the battery. The machines are made of cast-iron, are five feet in diameter, and are covered with sheet copper. The pulp is discharged in a basin in the center and flows over upon sheets of copper sloping towards the circumference of the machine. While this is being done, the machine is kept in motion about the same as a shaking table, causing a friction of the amalgam against the copper plates, and the gold escaping from the battery is caught. Should any quicksilver escape by passing over the plates, it is caught by a gutter of sheet-iron which runs around the rim of the machine, while the water and sand flow over, passing into a sluice arranged to carry them off.

NEW TUNNELING MACHINE.—Over a year ago we spoke of a tunneling machine invented by Col. Von Schmidt, of this city. We believe that some alterations have since been made. The following description is given:—The machine is constructed upon the Severance Diamond Drill principle, but in the mode of application the machine differs materially from all others at present in use. It consists of a circular wheel, eight feet in diameter. Imbedded in the rim of the wheel, each revolving on its own account, will be twenty-four diamond drills, one foot apart. In the center of the wheel is a single drill—and this is kept one foot in advance of the other drills. The wheel is calculated to make 800 revolutions per minute, the drills revolving at a higher rate of speed. The periphery of the tunnel will be on the scale of eight feet; the groove cut by the drills will be two inches wide and three feet deep. It is intended to load the center hole alone, then run the machine back on the track, and raise the lower half of wheel on hinges. The blast is fired, and the great cheese of rock crumbles to pieces. The machine is so constructed as to admit of three feet space inside of the wheels, between its frame work and the bed of the tunnel, and facilities for removing the debris are afforded by an inner car track. The machine will be run by compressed air.

A CHEESE FACTORY of 300-cow power is to be built at Macon, Michigan.

POPULAR LECTURES.

The Classics as Allied to Science.

[Prof. Martin Kellogg before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Fourth Series. Reported expressly for the Press.]

LECT. 1. April 22.—Prof. Kellogg, in commencing his lecture, referred to the changes which had been made of late years in the courses of instruction in our American colleges and also in similar institutions elsewhere. The scientific element is now being made more prominent, modern languages receive a larger share of attention, while the classics have lost the almost exclusive ground which they once held. The professor would not now enter into the discussion of this matter which has been so long and is now being agitated. Believing, however, that there was at least danger of going too far and of unjustly neglecting the ancient languages, he would speak of their claims in certain respects, and, entering into the spirit of the hour, would aim to present the Greek and Latin languages as true helpers to modern science.

The proposition he would make and endeavor to uphold is, that modern science finds most useful allies in the classics, and owes so much to them that it cannot afford to disparage or neglect them.

Science Needs Greek and Latin for its Terms.

Science is obliged to have recourse to the dead languages for terms. The reason of this is that the words in popular use lack definiteness of meaning, and science insists on definiteness and precision in this respect. Take the word "word," for example. What does it mean? The dictionary tells us that it is the spoken sign of a conception or idea; it is also the written character expressing such a term; it means talk or language; account or message; signal and order; statement, declaration or promise; dispute; an expression, phrase or clause; the Scripture considered as the revelation of God to man. You see how indefinite it is of itself. And a host of similar examples could be given, of which the lecturer named several.

Now, we cannot take one meaning without having objections made. Words in popular use cannot be selected because they are in popular use. But we can go back to the dead languages, the Latin and the more flexible Greek, which are rich in more precise expressions, and can take a word, giving it an exact meaning without objection thereto. In this we are aided by the character of those languages.

Classical Study Helps to Communicate Ideas.

Again, classical study helps the man of science to communicate his ideas to others. What is the medium of communication? It is (for us) the English language. Now classical study is the greatest help for the study of the English language and for its expression. The same is true for other modern tongues.

Many words are derived directly from the ancient languages; a number of examples were given. Again, the words which came from Latin and Greek are pre-eminently such as science employs, are pre-eminently the words of intellect, and express accurate and refined thought.

A knowledge of the original tongue causes one to use a derived word more properly and gives force and vividness to it, makes it more clear and calls up a picture, as it were.

Classical Study Needed for General Culture.

For general culture men of science cannot afford to neglect the classics. They are necessary, not only to learn our language, but for language in general. One must go to them for thoughts in which they are so rich.

In order to best learn and best teach scientific facts, we need these ancient languages. By the art of expression, learned therefrom, the scientific men of our day have been enabled to call attention to science and give it its position. If they neglect it, they will lose the present prestige.

Prof. Kellogg cited throughout numerous examples to sustain his propositions, of which the above is a mere sketch. He will lecture again this evening (April 29). The hour is 8 o'clock. The subject will be "The Latin we Speak," and that of the third lecture "The Greek we Speak."

GOOD HEALTH.

A Grain of Wheat.

BY O. L. ANDERSON, M. D.

In a popular journal, such as the PACIFIC RURAL, is, going as an instructor into thousands of families, it seems to me that gross errors should not be overlooked, or passed without correction. That errors will occur in the best of journals we all know. Most of them are so immaterial that the reader will readily make the necessary amend. But the one to which I wish to call attention to has been repeated so often that I am constrained to think the writer labors under the impression that his statements are in accordance with facts.

In the number for April 15th, is an article on "Water in the Stomach," in which this statement occurs:—"Nothing but organized matter seems to aid in building up the system. Meat, flour, corn, barley, etc., when taken into the stomach in their natural condition, undecomposed by either cooking or any other exposure are immediately digested; but when decomposition commences before they enter the human stomach, that decomposition is only accelerated there and they are converted into poisons."

Now if this statement is true it will be necessary to revise our standard works on Physiology and Chemistry. Indeed, the processes of Nature herself will have to be investigated, and different conclusions arrived at, in order to confirm this announcement. I propose therefore to give the history of a grain of wheat as collected from the best and most reliable authorities in order to show what processes and changes it passes through in order to reach its position in the human body.

A grain of wheat is a miniature storehouse containing a great many little bundles of various shapes and kinds of material. How and by what means this storehouse was built does not enter into our history. Suffice it to say that it contains several distinct apartments, and in each one of them there are hundreds of neatly constructed packages done up as no art can more than very rudely imitate. These little bundles are not labelled, but by their peculiar color and shape we always know what they contain. One of the largest compartments is filled with little round packages of starch,—plain, everyday starch, such as we may find any day in our stores. These packages of starch are by no means large. We might place five thousand of them in a row within the space of an inch. Some authors call them cells. Each one has a very strong envelope called "epidermis."

Another compartment contains an article called *gluten*. In fact, this gluten seems not entirely confined to one place. It is all through the storehouse, filling up spaces even between the starch packages. There are also a great many little parcels containing gum, oil, sugar, albumen, phosphates, etc. These are systematically arranged inside this little storehouse.

And now what are all these nice materials intended for? Some one may answer, to nourish man. Not so, in a direct sense. Inside, and occupying a central position, is a vital principle—*life*. We call it the *germ*. Now this germ or life principle can only increase or propagate, by feeding on these stores or their like. Decomposition must take place. St. Paul expressed this fact more forcibly than I possibly can: "*Thou fool, that which thou sowest is not quickened except it die.*" The building up of a body necessitates the tearing down of some other. Organization and disorganization succeed each other continually. The material stored in the grain of wheat is intended to be disorganized by the forces of nature that it may nourish the tender plant. The grain dies that the plant may live.

But suppose the grain of wheat he used for another purpose, that of feeding one of our bodies. We are informed by physiologists, and every day's experience teaches us the same, that in order to bring all these little parcels (cells of starch, etc.) into ready contact with the digestive fluids of the stomach and intestines some means must be used to break the envelopes, for the digestive apparatus acts very slowly or not at all on the epidermis of the grain of

wheat, and not always are the little packages inside broken. But there are several means used to break these enclosures; pounding, grinding, hoiling, etc. Each one of us has a set of grinders (when not decayed by hereditary taint, or disease of our contracting) between which these grains should be broken and triturated. But this process would be laborious and even impossible in some cases. Hence grinding in mills is resorted to, and afterwards boiling, steaming or baking. Water, as a solvent, is necessary so as to divide or decompose the particles and the process of digesting this grain of wheat is thus very much aided.

But what do we mean by digestion? Having broken open the storehouse, and each separate package by whatever means, and scattered the contents over the mucous membrane of a good healthy stomach and along the intestine, the presence of this material calls forth the action of certain glands and vessels and fluids to seize each particle that can be captured, and carry it away to be thrown into that great red stream which flows through the air-circulating apparatus called the lungs. Here a purification takes place. Much carbon and effete matters are winnowed from this stream, after which it is again collected into vessels and carried into the great chamber (the heart) and sent out from there by other vessels to supply the waste which is going on continually. And thus the grain of wheat has been changed from starch, and gluten, and sugar, and phosphates into muscle, nerve, bone, sinew, membrane, and other things analogous in the human body. As a whole the grain of wheat could not be assimilated, but by taking it to pieces and shaping each particle so as to fit in its new place with other materials. We see it again in our bodies and we give it a new name; but after all, the little phosphatic particles that clustered about the "germ," are found in the bones,—and for the present we must leave them there ever wondering at the beautiful processes we contemplate in Nature.

Our correspondent has given a very interesting article on the organization of a grain of wheat, and the changes which it undergoes when taken as food; but we cannot see how he controverts any position which he comments. What we intended should be understood in the extract quoted by our correspondent was, that "when putrefactive decomposition commences," etc. With this explanation we think our views will harmonize with those of our correspondent.

OIL OF PEPPERMINT TO RELIEVE PAIN.—A writer to the London *Lancet* says: "A few days ago, when in China, I became acquainted with the fact that the natives, when suffering from facial neuralgia, applied oil of peppermint to the seat of pain with a camel's hair pencil. Since then, in my own practice, I have frequently employed oil of peppermint as a local anæsthetic, not only in neuralgia, but also in gout, with remarkably good results. I have found the relief from pain to be almost instantaneous."

An American physician has discovered by a long series of experiments, that the weight of persons increases during the hot months. He found that there was a progressive loss of weight from September to March, and a gain from April to August. This view differs much from the commonly conceived idea. So far as our observations have led us, it is quite the reverse. A loss in the hot seasons and a gain as the colder season approaches. In all cases much depends upon climate, habits, dress and occupation of an individual.

BEE STINGS.—A writer to the *Scientific American* says that "a good absorbent" will ease the pain of stings: "The best absorbing substance that I have tried is lean fresh meat. This will relieve the pain of a wasp-sting almost instantly and has been recommended for the cure of rattlesnake-bites. I have also used it with marked effect in erysipelas."

APPLES.—An eminent French physician says the decrease of dyspepsia and bilious affections in Paris, is owing to the increased consumption of apples, which fruit he maintains, is an admirable prophylactic and tonic, as well as a very nourishing and easily digested article of food.

It has been proved that geological conditions have an influence on the health.

Clear Creek County, Colorado.

The Georgetown Committee, appointed to collect statistics with reference to the building of a railroad to their place, have a report, which is given in full in the Colorado *Miner* of April 13th. We give some of the principal items in brief.

The amount of freight received and shipped in the county, in 1870, was 9,330,854 lbs., for which the freight charges were about \$103,000. This represents only the freight handled by merchants, livery stable keepers and mining companies. The amount of smelting ore which would be produced on the completion of the proposed railroad is estimated at 200 tons daily. The amount of wood now consumed exceeds 200 cords per day, unsawn pine costing over \$5 per cord. It is estimated that the daily consumption of coal, were the road completed, would amount to about 100 tons. The passenger travel per day is set down as 15, which number is probably a typographical mistake.

Any such estimates as the above, being difficult to make, are of course merely general. We are inclined, from what we have seen, to think these under-estimates, as the Committee have endeavored to be on the safe side. A railroad to Georgetown from the valley would be of great benefit to the place, and would infuse new life into the surrounding regions. We hope the people will earnestly set to work in the matter, and we suggest that they examine into the merits of the narrow gauge. They can get such a road at a comparatively small expense in a short time; its benefits would be exceedingly great.

COUNTING FLAME VIBRATIONS.—Chas. J. Watson details, in *Nature*, some experiments on vibratory phenomena. "The apparatus made use of consists simply of a card-board disc furnished with radial slits, and which can be rotated with any desired velocity. To examine a coal-gas flame singing in a glass tube, the disc is placed in front of the flame, and the eye placed where the slits pass in a vertical position. When the disc rotates with such a velocity that the interval between two slits passing the eye is just equal to the period of a complete vibration of the flame, the flame appears to be motionless; but if the velocity of the disc be slightly reduced, the flame is seen slowly to go through its changes of form, appearing to consist of a series of puffs, resembling those from the funnel of a luggage locomotive. When the interval between the passing of the slits is equal to, or is one-half, one-third, etc., of the period of vibration of the flame, a singular appearance of a phantom disc is seen, having as many or twice or three times the number of slits really in the disc; this phantom wheel appears motionless if the periods exactly coincide, but if they do not, it slowly revolves in one direction or the other. It is obvious that this affords an easy method of counting the vibrations of the flame. With a sixteen-inch tube I thus found the number of complete vibrations per second to be about 453."

HOW LONG WILL LAND CONTINUE TO INCREASE IN VALUE.—An acre of land was recently sold in the city of London for \$3,600,000, and in nearly every portion of the city land is said to be increasing in value every year. It may be an interesting question, "How long will land continue to increase in value?" Will it ever arrive at a figure above which no one can buy it, and make a profit for its use? Over three and a half millions an acre, and still increasing in value!

TELEGRAPH SOUNDER KEY.—J. Gamble, S. F. This is a very neat device by which the hand can be taught the proper motion for writing with the signal key, and the ear rendered familiar with the telegraphic sounds or clicks, without the necessity of having a battery. It is convenient, neat, and cheap, and is coming largely into favor among those desiring of learning to operate.

DR. JOHNSON said, when in the fullness of years and knowledge. I never take up a news paper without finding something I would have deemed a loss not to have seen; never without deriving from it instruction and amusement.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,
W. B. EWER, JNO. L. BOONE.

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, April 29, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, Apr. 26, 1871. Legal Tenders
buying @90%; selling @91. Gold in New York to-day
110%.

Table of Contents.

Combined Roasting and Smelting Furnace, Ill.....	257
MECHANICAL PROGRESS.—Powerful Pump; New Thing in Weaving; New Water Meter; Pittsburgh Manufacturers; Perfection of Modern Tools; Cutting Glass with the Blowpipe Flame.....	258
SCIENTIFIC PROGRESS.—Solid Heat; Changes of Weight by Oxidation and Reduction; Eozoon Canadense; Nuclei Promote Crystallization; Reality of Species; Origin of Diamonds.....	258
Notes on Merced County; High Mass in a Mine; Punch and Judy in Europe; Locomotives for Narrow Gauge Roads; Fire Proof Clay; Telegraph to Eureka; Iron Ore; Enormous Importation of Silver.....	259
MINING SUMMARY; Shareholder's Directory; Market Rates.....	260, 261
List of Patents; Notice of Patents; Rearing Silkworms; Real Yankee Idea; Gold Saver; Tunneling Machine.....	262
Classics as Allied to Science; A Grain of Wheat; Clear Creek County, Cal.; Flame Vibrations.....	263
The New Mint; Population of S. F.; Editorial Note Eastward; Suggestion to Miners.....	264
Boiler Injector, Ill.; American Medical Association; Progress of the Silk Business; Coal in New Mexico.....	265
Good Mutton; Hints to Housekeepers; Cooking and Eating; Domestic Receipts; Mechanical Hints; Life Thoughts.....	266
New Publications; Mineral Deposits of Eureka Dist., Nev.....	268

The New Mint.

There is, as most of our readers are aware, a new building now in course of erection in this city, which is to be used in place of the present inadequate mint. For this building a good location has been selected, a large sum of money appropriated, and an imposing structure promised, which shall be an ornament to the city. We have spoken of the progress made from time to time, and have indulged in the hope that the edifice would be a monument of architectural skill and excellent workmanship.

For several months we have watched the course of events, and our hopes, we are sorry to say, have been changed into fears. Instead of an ornament, the edifice bids fair to be a disgrace. It is being constructed of an imported stone, a cretaceous sandstone from Victoria. This rock contains a little lignite in places and considerable iron. On exposure to the atmosphere, the iron is oxidized, and before the building had risen many feet above the foundation, the stone was already discolored. We are now enjoying the sight of an apparently ruinous monument being erected. Again, the separate stones are in many instances being laid at right angles to the natural position, and promise to chip off extensively.

We do not know who is to blame in this case. We have been told that the stone has been contracted for, and that the workmen are obliged to do as well as they can with the material they have. We suppose, then, that it is too late to expect a remedy. We strongly object, however, to the use of public moneys for such ugly things as these. If an earthquake should feel obliged to visit us, it would be a little consolation if it would shake down the miserable object and rid us of it. The present unsightly mint does not trouble us so much as does the new ruin.

The Cocomungo vineyard, which suffered very seriously from grasshoppers last year, is threatened with destruction by them again.

Population of San Francisco.

A new country is particularly sensitive to all criticisms and mistakes. This is perfectly natural. Until it has established the reputation of a firm foundation, it is more susceptible to the light breezes which an older land can afford to let pass unnoticed.

Few subjects are of greater importance in this connection than the matter of population. The taking of the census has excited more individual attention on this coast than elsewhere in our country. Knowing that we are weak in numbers, we desire above all things not to be underrated. Besides, in this State, the two previous times the census had failed to do us justice. This time also, the general belief was that equal injustice had been done.

The publisher of Langley's Directory determined to investigate the matter and to test the comparative value of his statistics. The investigations tend to show that the figures for our city were too low. Large numbers of residents are asserted to have been omitted by the census agents. We have not space to quote the proofs, but we add Mr. Langley's estimates.

In 1847, San Francisco contained a population of 459. The census of 1870 showed a population of 150,361. Langley's Directory for 1869-70 gives a population of 170,250. The publisher, in the number just issued, gives the following as his estimate for the date of January 1st, 1871, based on the most careful researches:

White males over 21, names in the present volume.....	57,550
White females over 18, estimated.....	56,400
White males under 21 and females under 18, estimated.....	56,500
White males, names refused, and foreigners, estimated.....	3,000
Chinese, male and female.....	9,000
Colored, male and female.....	2,000

Total permanent population..... 154,750
To which should be added a large element of our population known as "floating," which consists of: 1st. Transient boarders, etc., at hotels, boarding houses, etc. 2d. Soldiers at the fortifications in the harbor. 3d. Persons engaged in navigating the bay, who claim this city as their residence. 4th. A number of persons who have no permanent place of abode, together amounting to about..... 8,000

Total population..... 172,750
The assessed value of real and personal property for 1870 was \$114,759,511. The rate of taxation was \$3.08 on the \$100. The bonded debt, last June, was \$4,606,500. Deducting \$1,367,122.91, thus in the Sinking Fund, the actual debt was \$3,239,377.09. The annual payments into the Sinking Fund aggregate \$184,000. Municipal expenses last year were \$2,684,433.

The manufacturing establishments of this city, now in operation, number upwards of 800, employing a capital of \$17,000,000, consuming annually material of the value of \$23,000,000, and producing goods worth \$45,000,000. The present state of this great interest can only be told in figures, but a grand exposition will be made at the Mechanics' Institute Fair in September next, which is awaited with bright anticipation.

Since the above was written, the U. S. Marshal has replied. He defends the accuracy of the census, and charges Mr. Langley with inaccuracy. Believing it just in such cases to give both sides, we present the substance of the Marshal's charges. They are, in brief, that several thousand business men included in the Directory do not reside here; that quite one-half of the "floating population" could not be enumerated for the city, as the census takers must enumerate persons at their places of residence; that fully 1,000 persons named in the Directory could not be found at the places of residence there given; that quite another thousand are duplicated in the Directory; that the process of "colonizing" before election vitiates the value of the poll lists for a census; that, for other reasons, Mr. Langley's "estimates" are very incorrect and cannot be accepted in the face of the figures obtained personally by the twenty Federal census takers. As he defies Mr. Langley to show actual proofs of some of his assertions we shall probably hear more of the matter.

Iowa has a "narrow gauge Railroad Company."

Editorial Notes Eastward.—1.

Oakland to Sacramento.

DEAR PRESS:—As you know, it is with strong effort that I have thrown myself out of the routine of office duties for a few weeks, to visit a dear mother who longs to see again her "boy" before her declining steps are even more feeble. While I cannot promise to write you formally when absent, I will yet send you a few items for the forbearing reader.

From Oakland to Sacramento, I cannot say how fine the grain looks by the way, but the wild flowers are out in their gorgeous hues, acres and acres of bright colors clothing our Mother Earth with richer loveliness than is her lot in any other clime or quarter of the globe. They evidently do not take cognizance of a dry season. The scene reminds that while the middle of May is early enough for the tourist to visit Yosemite, yet all comers for sight-seeing would do well to spend a few weeks previous in rambling over one or more of our lovely valleys while carpeted with these annual flowrets.

Our C. P. R. R. train from Sacramento seemed well filled with eastern-bound travelers, but our conductor says that he will return with about double the number of in-coming passengers for California.

A Trip Eleven Years Ago.

One evening eleven years ago, I mounted the "upper deck" of a 6-horse stage, at San José, bound for a journey overland via the southern route through Arizona, Texas, etc. Well do I remember the weariness of the first night's ride. To Gilroy, the novelty of our situation kept us awake, but after midnight came sleepiness. Repeatedly our hands commenced to loosen the grasp which kept us from falling, and repeatedly did we respond to the call of "down heads" to save our bats (and their contents too) from being swept off by the overhanging branches of the wayside oaks.

Breakfast was called at 2 A. M. at the Mountain House. (Dimly responded to.) All day long we crawled through the hot sand and suffocating dust of the San Joaquin valley, to find that we had made a little over a hundred miles, riding all night and all day. Our friends could hardly have recognized us or rated us at a higher grade of color than half-breeds, and we felt just as dirty and disagreeable as we looked, as we entered our second night of perpendicular dose—not sleep.

The next morning we were remarkably polite. Our heads nodded with an incessant repetition to the rising sun, before whose coming a half of the party had even taken off their hats and deposited them by the wayside, riding all the time until his majesty retired to rest, (would that we could have done the same) with heads respectfully uncovered. And this was only the commencement of our twenty-two days' punishment, continued incessantly as we traveled in the crowded, cramped thoroughbrace stage on to St. Louis.

The Difference.

How different our start to-day in the palace car! Here we can enjoy our little circle of friends, amuse ourselves with books and games, enjoy "chatty lunches," and take "square meals" at the stations at convenient hours. Verily, this demonstrates progress for the Pacific Coast.

Anything like a wordy description of a trip over the Central Pacific now would be indigestible. The greatness and completeness of the enterprise are prominent in our recent history. Its engineering management is even more skillful and thorough and commendable than during the rapid construction of this great railroad thoroughfare.

The published photographs and stereoscopic views gave me the best ideas of that part of the route which I had not previously seen, although they are but meagre without the actual natural life which causes the pleasing and lasting impressions one experiences in "going through" them. The best I can do for our appreciative readers is to present them with wood illustrations of the most striking features of the route; for a glance at these will present to them more truth than tongue can utter of the marvelous views. We are indebted to the officers of the C. P. R. R. for the use of the fine engravings. D.

A Suggestion to Miners.

The managers of the Eighth Industrial Exhibition of the Mechanics' Institute are evincing the strongest determination to make the affair a grand success, and a most praiseworthy determination to have every interest of the coast properly represented. One of their latest steps is to make the mining industry prominent, as it ought to be, and, as one of the ways of arriving at this object, they have determined to request specimens of ores, minerals and metals from the various mines of our Pacific slope for exhibition.

A circular has been, or will soon be, issued to the owners and superintendents of mines and mills, requesting contributions. The specimens sent (Wells, Fargo & Co. will transport them free of charge) are to be labelled properly and given a prominent place. Moreover, a descriptive catalogue will be published for general distribution, which will give details containing the mines, mining companies, etc., as furnished by the contributors. The specimen, after the Exhibition has closed, will be placed in the mineralogical cabinet of the Institute, whose property they will then be, where, with the catalogues, they will be open to public inspection.

We believe that this opportunity should not be neglected by miners. A fine collection of ores, etc., will make a powerful impression on our mineral wealth on the visitors who are coming to the Exhibition from various quarters of the globe. It is not enough to talk on this matter; we must give people ocular proof of our capacities, proof that our mines are not exhausted, as some are fond of saying. Let our gold and silver, our lead, quicksilver and copper, our metals, noble and useful, our precious gems, in their varied forms and conditions, from mine, mill and furnace, be here to show that placer and vein and other forms of deposit are still flourishing, and able for years and years to furnish an immense amount of wealth to our country. "To see is to believe." Let our visitors have full opportunity to see. We shall profit thereby. It is one of the best of ways to attract attention and capital.

We have another suggestion. There exist in our mining district journals unsurpassed for energy, activity and ability to advance the interests of their respective sections. We appeal to our brethren of the pen to help on the matter by showing, as they are well able to do, to the miners how a little exertion and generosity now will redound a hundred-fold to their credit and their pockets.

OREGON MEDICAL AND SURGICAL REPORTER.—We have received a number of this quarterly from Dr. H. Carpenter, one of the editors. The journal contains ninety pages of excellent matter, including original communications, selections from various journals, clinical cases, reviews, miscellaneous medical news and editorial notices. It is ably edited, and filled with matter of value. It is published at Salem, Oregon.

THE BIGGEST.—At San Juan Capistrano is a pepper tree said to be the largest specimen of that beautiful variety to be found in the United States. It is seven and a half feet in circumference, with branches spreading over a circle sixty feet in diameter, and stands in the yard of the Pioneer Hotel.

TRUCKEE SMELTING WORKS.—A telegram from Truckee of April 26th says the smelting works of this place, of which C. H. Swain is Superintendent, are turning out a large amount of bullion. Over 20 tons were shipped from here to San Francisco last week.

FLAX.—The Malcolm Bros., says the Monterey Republican have a 300-acre field of flax in that vicinity in full bloom.

Gresham's Boiler Injector.

The improvements hero described, tho invention of Mr. James Gresham, of Eng- land, having for their object tbo increased facility of putting the injector for feeding steam boilers in operation, have excited some attention abroad. We are indebted to tho *Amer. Artisan* for the description and illustration.

In general, an injector cannot at tho out- set lift its water except at a slight depth, but once set in operation its elevating power is nearly or quite equal to that of a pump. When water needs to be drawn from a considerable depth, recourse has been bad to the nso of a reservoir, placed near the boiler and connecting with the steam-jet chamber of tbo injector by means of a snitable pipe. With this ar- rangement, the filling of the lift-pipe with water insured the requisite action of the steam as soon as let on; bnt the inertia of the water in the pipe tends to interrupt the continuity of the lifted jet forced to the boiler.

To remedy this defect is the object of Mr. Gresham's inven- tion. One form of his im- provement is shown in Figs. 1 and 2, the one a front view, showing the device applied to an ordinary boiler; the other on an enlarged scale, a sectional view of strainer and valve provided at the lower end of tbo lifting or aspirating pipe.

The steam pipe and tho re- turn or feed-pipe are each fur- nished with a stop-cock, by which their communication with the boiler may be cut off. The feed-pipe is furnished with a branch, *t*, which extends up to a reservoir, *r*, and is fur- nished with a stop-cock, *l*. The reservoir, *r*, has a pipe, *u*, extending down from it, the lower end communicating with the chamber, *g*², above the valve thereof. From this chamber there extends up- wards the aspirating-pipe, *g*, connecting at its upper end with the steam-jet chamber of the injector. The pipe, *u*, is furnished with a valve operated by the movement of a toothed sector on the outer arm of a lever, *v*, the inner end of which is forked to embrace the needle, the movement of which opens and closes the passage for the steam-jet.

The forked end of the lever, *v*, being depressed, actuates the valve in the pipe, *u*, to open the same, whereupon the water from the reservoir de- scends and fills the pipe, *g*. If now the needle be lifted to permit the passage of the steam-jet, the lever will cause the valve just mentioned to be closed, simultaneons- ly with which the steam will begin to act to raise water in the pipe, *g*, from the source of supply in which the lower end of the said pipe is situated, and the pipe, *g*, having been filled as previously mentioned, the entire lifting force of the ejector may be exerted as well at the outset as after it has been in operation for some time. When the boiler is filled to the requisite degree, the communication of the feed- pipe with the boiler is closed, and the valve, *l*, of the branch pipe, *t*, is opened, wherupon the steam-jet forces water into the reservoir, as it had previously done to the boiler, until the deficiency in the latter from the filling of the pipes, *u* and *g*, is made good, whereupon the parts are brought to their normal position until the boiler again needs filling.

Mr. Gresham has still another plan in which the elevated reservoir is dispensed with. It is represented in Figs. 3, 4, and 5. The modification consists in the ar- rangement at the orifice of the steam-jet chamber of a curved pipe, *k*, exterior to which, is filled the shell, *h*², the contour of which is more fully shown in Fig. 4. The annular space, *h*³, connects by a small pipe with the steam-pipe, *f*, as in Fig. 3, the connection of the small pipe with the annular space, *h*¹, being also shown in Fig. 5. This small pipe is furnished with a stop-cock or valve. By bringing down the needle of the ejector in such a manner as to wholly prevent access of

steam to the reversed cones, yet leaving access of water thereto, and turning the cock in the small pipe to admit steam to the annular space, *h*³, the consequent con- densation of such steam in the space re- ferred to will cause a partial vacuum. This, the space, *h*³, being in communica- tion with the inlet or aspirating-pipe, will cause the water to rise in the latter: which done, it is only necessary to close the cock in the small pipe and raise the needle of the injector, wherupon the operation of the steam in working the injector will pro- ceed in the usual manner.

Fig. 6 represents a variation of the sys- tem just described applied to the Giffard injector, and in which the aspiration of water is wholly through the center. The annular space is arranged in duo relation with the cone, *d*, and communicates with the orifice of the steam-jet chamber, *h*. This space is put in communication with the steam taken to aid the operation by means of a small vertical pipe and a suit- able valve.

The device was patented in 1868 and has since been successfully used.

Fig. 1

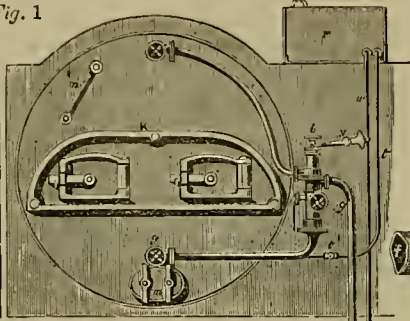


Fig. 2

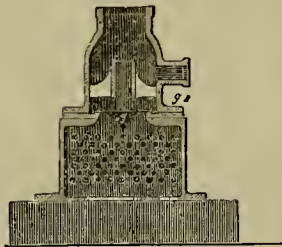
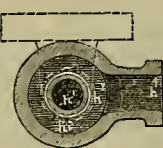


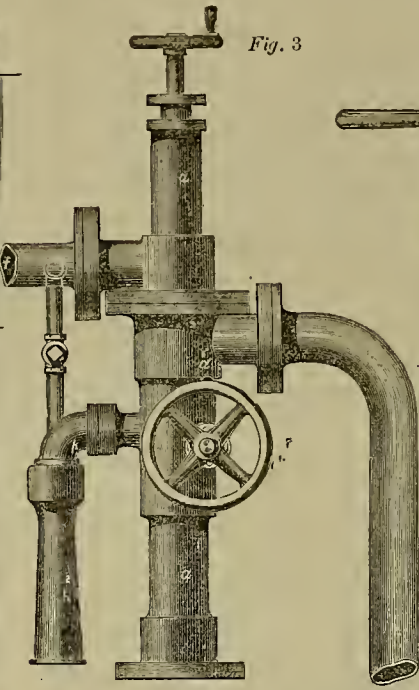
Fig. 5



Progress of the Silk Business.

One of the greatest drawbacks hereto- fore encountered in the raising of silk- worms in this State has been the lack of a market for cocoons; bnt this trouble will no longer be felt, as the silk factory, which will soon go into operation in this city, will buy all that are offered. They will also buy all the reeled silk that may be pro- duced in the State. It is furthermore the intention of the company to manufacture and send to different parts of the State, at the bare cost of manufacture, reels suitable for taking the silk from the cocoons, and by the aid of which process women and children may be able to utilize their leis- ure, after the busy season is over, in reeling the cocoons which they may have produced during the summer; thus adding largely to the value of the product of the mul- berry patch. All needed instruction will

Fig. 3



Coal in New Mexico.

A late number of the *Cimarron News* contains an interesting article on the re- sources of Colfax county. The writer claims that the county is rich in coal de- posits. We give below some of the state- ments.

The coal so far discovered is in a range of carboniferous sandstone hills, varying in height from 400 to 1,000 feet. These hills commence, on the west, at the junction of the Ute and Cimarron valleys and continue nearly due west. On the east, the hills terminate in a series of spurs which skirt the prairie land. The average length, north and south, is 50 miles. On the Cimarron, which forms the southern boundary of the coal field, coal has been discovered for a distance of at least eight miles up the valley, but the coal-bearing strata widen considerably to the north- ward, having been proved all the way up Purgatoire valley. The width of the coalfield at the north boundary cannot be less than twenty miles; the average width may be taken as not less than fourteen miles, and the area as at least 700 square miles.

Immediately below the sand- stone of these hills lies a dark argillaceous shale of unproved thickness. Whether coal exists below this is not known. The beds of sandstone and coal lie very regular, not a fault or dis- location being discernable; the inclination in the southern portion of the field is about 1 in 100.

The seams have been proved in the bluffs facing the Cim- arron river, three-fourths of a mile from Cimarron. The lowest seam is immediately above the sandstone overlying the black shale. The section of this seam here is: coal, 2 ft. 6 in.; slate, 1 ft. 8 in.; coal, 1 ft.

In the rocks above this, five other coal seams have been traced eight miles up the Cim- arron valley. These same seams have been traced fifteen miles up the Pinel valley.

On the Vermejo and arroyos leading to it, heavy ledges are exposed in not less than thirty different places, from 5 to 11

feet in thickness. The same is seen on Crow Creek and Red River, and on the in- tervening cañons and arroyos. In the Raton mountains, coal, of a thickness of 10 feet, has been proved and is worked for local purposes. Near Trinidad thick seams have been opened out and worked.

The coal is bituminous, very free from sulphur, and has been shown to serve well for household and blacksmith purposes. The above facts are based on observations made by Mr. W. A. Wagner on behalf of the company owning the property.

WORKING ORES AT THE AUBURN MILL.— In the article on this subject last week, under the heading of "Roasting the Ore," Mr. Hofmann gave the number of men em- ployed at the 15 reverberatory furnaces as about 70, which was incorrectly printed 90.

TELEGRAPHIC.—The *London Times* of April 10th, has the following of interest: On Saturday, experiments were made on the European line, *via* Teheran, to work direct without any retransmission between England and India, Bombay and London, interchanging signals perfectly, and a com- mercial message was sent to Bombay di- rect by London at 1:58 p. m., and was in- stantaneously acknowledged. This is the first occasion on which the telegraph has worked direct without any retransmission between England and India. The distance from London to Bombay by the Indo-En- ropean line is six thousand miles.

GRESHAM'S PATENT INJECTOR FOR STEAM BOILERS.

AMERICAN MEDICAL ASSOCIATION.—The meeting of this association in this city, on the first of next month, will be an inter- esting one for the coast. It will bring here many visitors of fine culture and social position. The National Association numbers over 3,000 members and is re- presented by several hundred delegates. It has been in existence since 1847 and has attained a high success in its objects. Its meeting here is an indication of our taking an ever stronger position among our sister States of the Union in the minds of men. Such meetings will give wider and better information of our attainments and capaci- ties among the the people of the older parts of the country. Besides, special in- quiries will be made in this case, it is said, concerning certain matters,—concerning a proper locality for a sanitarium for consumptives, a proper site for a Cinchona or Peruvian bark tree plantation, etc. Thus, in every respect, we have much to expect from this meeting, and we hope that the Association will be warmly wel- comed, hospitably received and helped in its investigations. The S. F. Medical Society is busy making arrangements for the convention, and the Sacramento So- ciety have generously offered to contribute \$1,000 towards paying the expenses. The proprietors of Platt's Hall have offered the place free of charge,

also be sent with each machine for doing such work properly. We look upon this as one of the most useful and promising enterprises ever undertaken in the State.

Silk-growing can be made almost inde- pendent of drouth, and distance from a market. It is an industry which can be introduced anywhere, wherever the cost of living can be made reasonably cheap, and can be conducted on any desirable scale, large or small. It can be introduced up- on every farm, and into every family, and by it the labor of families and children may be utilized to any desirable extent. With the San Francisco factory in oper- ation, and reels distributed as proposed, the silk business of California will have passed beyond the experimental state to a position among the leading industries of the State. Apropos to this subject, the reader will find a very valuable and sea- sonable article, in another column of the present issue, detailing the *modus operandi* of hatching and feeding the worms.

THE IRON WORLD AND MANUFACTURER comes to us as "a representative of Ameri- can metal manufacturers, workers and dealers." It is marked by vigor and fresh- ness of editorials, excellent descriptions of manufactures, improvements and the like, and by the carefulness and accuracy of its market reports. It has the freshness of youth and the ripeness of age, and is de- servedly successful. It is issued by the Iron World Publishing Company, 71 Grant street, Pittsburg.

DOMESTIC ECONOMY.

How to Have Good Mutton.

The following facts, though pertaining more particularly to the butcher's stall, are nevertheless so important to be known in the kitchen, that we have preferred to place them in this department.

The sheep is a delicate feeder, and makes one of the most delicious and digestible of all the butcher's meats. Like most animals, it improves in flavor by age, and attains its perfection, in most breeds, at the age of three years, when it makes *red mutton*—so called, because the gravy, though well done, is red and of high flavor. In feeding sheep for the luxurious table, there should be but few together, which allows them greater variety of food and more repose. In large flocks the strong sheep monopolize the best herbs and grasses, and the weaker ones are poor and mean meat; besides, there are always restless sheep where many feed together, and the others of the flock are ill at ease whilst any are on foot. Sheep well-grazed are better than the stall-fed, and have that "gamy" and juicy flesh so liked by epicures. The best table sheep in the British Isles are the small Welsh breed, which have the wide range of those mountains.

But the best sheep in the world are often spoiled by bad butchering, and I propose to show how this should be done. Many persons become disgusted with, and never eat mutton, because of what they term the "wool-taste." Now, a sheep well-dressed, may be wrapped in the skin and wool, as well as in the purest linen, and never have a "wool" flavor. The intestines of the sheep are like those of all the ruminating animals, very long and powerful in capillary absorption; and, if allowed to remain in the body after death, infuse the odor and flavor of their contents into the meat, and thus give that ill taste. Everything, then, depends upon *rapid dressing*.

While yet alive, the sheep should be suspended by the hind legs, well apart, to two pegs, or hooks, to a cross-timber, so that the body may be easily reached on all sides without turning it. The butcher should be prepared, with a sharp knife, ax, meat-saw, thread, and water; also with a block, or low stool, to stand upon, if need be; for the sheep, when suspended, is too long generally to be easily reached in all parts. The throat should then be cut, severing both arteries, and the blood entirely let out. The skin should then be rapidly taken off, at least from the parts to be cut in taking out the intestines, and pinned back, so as freely to allow that operation. This finished, the blood should be washed out by casting on the body clean water freely. Should the intestines at any time be broken, let them be tied up at once, and the soiled parts well cleansed. The body should hang until it is well dry, when it is ready for use. Mutton (and all meats) never ought to be salted, if possible, until it is ready for the cook. Salt absorbs the juices, dries and preserves the meat, but spoils the flavor. Meat should be hung in a cool, dry place, so that all parts may be aired. All "flesh, fish, and fowl" should be eaten as soon as possible after the animal heat is out. Persons in cities, learn to like "high" and stalemeats, because they get no other; but it is a depraved taste.—*Agriculturist*.

Cooking and Eating.

We find the very best types of piety and christian generosity where the wants of the body are well supplied. For this cause God led his ancient people into the land "flowing with milk and honey." "Milk and honey" were means of grace. Where the soil is fat, the harvest abundant, and the people strong, love to God and man flourish, money is freely given to send the gospel to the lost; people delight to give liberally, they devise liberal things, and enjoy it. Material blessings help the spiritual growth. They may be abused, so may any blessings; yet they tend to make Christians more christian-like.

As eating is so useful and christian, the work of preparing food wisely, temptingly, is exalted. A good cook is equal to a good teacher. Skill in preparing food equals skill in science, or literature, or art, and is usually more useful. Many a business man, many a preacher, many a scholar, has failed from lack of health; and poor cooking spoiled the health. Cooking is an honorable calling; there is science in it; there is philanthropy and religion in it; God is served and humanity is blessed by it. Let no one despise the work of the

kitchen; it ranks higher than embroidering, music, or ornamentation in the parlor. The cook comes before the author in useful service. She is superior to a professor of the fine arts; she supplies the sinews of war, the juices which make muscle and nerve and brain, and force to think and do manly deeds.

But we should eat like men, and not as gluttons; eat to live and work, and not live to eat; eat what will add most to our strength, as men of thought and action, and avoid the hurtful and degrading.—*Ec.*

A Few Hints to Housekeepers.

I have used all the following appliances and can commend them to others:

If the covers of sofas and chairs are dirty they may be cleansed without being removed, by first washing them over with a flannel, then before they are dry, sponge them over with a strong solution of salt and water, in which a small quantity of gall has been mixed. The windows of the room should be opened so as to secure a perfect drying, and the colors and the freshness of the articles will in this way be restored.

Floor cloths may be cleaned with a mixture of magnesia, only milk warm, followed by warm water, in the same manner that carpets are cleansed. They should be rubbed with dry flannel until nearly dried, then wet over with a sponge dipped in milk, and immediately dried and rubbed with a flannel till the polish is restored. This is a process much to be preferred to that of rubbing the cloth with wax, which leaves it sticky and liable to retain dust for a long time. Very hot water should never be used in cleaning floorcloths, as it brings off the paint.

The operation of cleaning mirrors and polished steel articles is an easy matter when rightly understood. The greatest care should be taken in cleaning a mirror, to use only the softest articles, lest the glass be scratched. It should first be dusted with a feather brush, then washed with a sponge dipped in spirits to remove the fly spots; after this it should be dusted with the powder blue in a thin muslin bag, and finely polished with an old handkerchief.

Polished steel articles, rubbed every morning with leather will not become dull or rusty; but if rust has been suffered to gather, it must be immediately removed by covering the steel with finely powdered unslacked lime, and rub it with polishing leather. In these dear times we farmer's wives should do everything within ourselves of this kind, and many others that are expedient, as we all value economy.—*German town Telegraph*.

COURT PLASTER.—It is easy, says the *Scientific Review*, to make this article and so difficult to purchase it genuine, that the process should be known in every household. Soak brushed isinglass in a little warm water for twenty-four hours; then evaporate nearly all the water by a gentle heat, dissolve the residue in a little proof spirits of wine, and strain the whole through a piece of open linen. The strained mass should be a stiff jelly when cool. Now, extend a piece of silk on a wooden frame, and fix it tight with tacks and packthread. Melt the jelly, and apply it to the silk thinly and evenly with a badger hair brush. A second coating must be applied when the first has dried. When both are dry, cover the whole surface with two or three coatings of Balsam of Peru, applied in the same way. Plaster thus made is very pliable, and never breaks.

HOME-MADE SODA WATER.—Beat the whites of three fresh eggs until light, then stir in two tablespoonfuls of corn starch (or fine flour) with half a pint of water. Add 2 lbs. white sugar, and 3 oz. cream tartar and three of tartaric acid dissolved in two quarts of water. Boil the whole five minutes. When cold, bottle, and for soda water fill a half-pint tumbler one-third full of water, adding two tablespoonfuls of the mixture. Finally, stir in ¼ teaspoonful of soda dissolved in water, and the result will be a glass of soda water, very little inferior to that sold in the shops.

TO MAKE BOILED ONIONS LOOK WHITE. Take a white or yellow-skinned kind. Skin them thoroughly. Put them to boil. When they have boiled a few minutes, pour off the water, and add clean, cold water, and set them to boil again. Pour this away, and add more cold water, when they may boil till done. They will be white and clear.

Domestic Receipts.

ORANGE BISCUIT.—Beat the butter until it is cream, and stir it into the white sugar, then mix in the flour and stir in gradually the yolks of the eggs, beaten well; whisk the whites, and mix them with the other ingredients—fill some butter moulds, pour in the mixture, sift some powdered sugar over, and bake them in a slow oven.

LEMON BISCUIT.—Dissolve the soda, mix the sugar, flour, milk, suet and lemon all well together, using milk enough to wet the dough, cut them out, put on greased, and bake in an oven.

HICKORY NUT BISCUIT.—Make same as for savory biscuit; shell and chop the nuts, coarse or fine, and mix in; roll out thin, bake brown.

LYE HOMINY.—To one gallon of shelled corn, add one pint of strong lye, (or one quart strong ashes, if you have no lye,) and sufficient water to boil. Boil until the hull becomes loose, then wash thoroughly; put on and boil a few minutes, then pour off the lye water and add fresh water. Boil now until thoroughly done, and you will have "lye hominy" good enough for any one.

TO GET RID OF FLEAS.—Sprinkle air-slacked lime, in small quantities often around stables, hen roosts, sheds, places where hogs and dogs sleep, etc. It is a sure, cheap, clean and healthy remedy.

TO GET RID OF ANTS.—Drop some quicklime on the mouth of their nests, and wash it in with boiling water; or dissolve some camphor in spirits of wine, then mix with water, and pour it into their haunts; or tobacco water. A few leaves of green wormwood, scattered among the haunts of these troublesome insects, is said to be effectual in dislodging them. They are averse to strong scent. Camphor will prevent their infesting a cupboard, or a sponge saturated with creosote.

SHAVING PASTE.—Spermaceti, almond oil and white wax, of each, half an ounce; melt, and, while warm, beat in four squares of Windsor soap, previously reduced to a paste with rose-water.

TO PREPARE LETTUCE.—Lettuce being a very plentiful fresh vegetable just now may be dressed in several ways, thus giving variety. Prepare a mixture as you would for cold slaw. A cup of rich milk or thin cream, one egg beaten light, a tablespoonful of mustard, a lump of butter half size of an egg, salt to your taste. Set on the fire until the ingredients are thoroughly beaten. When cold add by degrees a cup full of strong vinegar. This mixture poured over the lettuce will make a very appetizing addition to a spring dinner.

Mechanical Hints.

LAPLAND GLUE.—The bows of the Laplanders are composed of two pieces of wood glued together, one of them of birch, which is flexible, and the other of the fir of the marshes, which is stiff, in order that the bow, when bent, may not break; and when unbent, it may not bend. When these two pieces are bent, all the points of contact endeavor to disunite themselves; and to prevent this, the Laplanders employ the following cement: They take the skins of the largest porches (it is very probable that eel skins would answer the self same purpose) and having dried them, moisten them in cold water until they are so soft that they may be freed from the scales, which they throw away. They then put four or five of these skins in a reindeer's bladder, or they wrap it in such a manner that water cannot touch them, thus covered, in a pot of boiling water, with a stone above them to keep them at the bottom of the pot. When they have boiled about an hour, they take them from the bladder or bark, and they are then found to be soft or viscous. In this state, they employ them for gluing the two pieces of their bows, which they strongly compress, and tie up until the glue is well dried. These pieces never afterwards separate.

RULES FOR PAINTING.—1. Let the groundwork be carefully prepared and dry. 2. See that the colors are well ground and duly mixed. 3. Do not mix much more, nor any less, paint than you think will be necessary for the present work. 4. Keep the paint well mixed before using. 5. See that the paint is neither too thick to work well, nor too thin to cover properly, and apply it evenly. 6. Do not apply a succeeding coat before the previous one is dry. 7. Do not use a lighter color over a darker. 8. Do not add driers to colors long before using. 9. Use just as little driers as will do the work. 10. Do not over-charge the brush with paint. 11. Begin with the highest part of your work and proceed downward.—*Builder*.

LIFE THOUGHTS.

The less a man thinks about his virtues, the better we like him.

Prefer diligence before idleness, unless you esteem rust above brightness.

Buy the truth and sell it not; also wisdom and instruction and understanding.

FAITH which works by fear only leads to a selfish, dishonest repentance, if to any.

No person ever got stung by boruets who kept away from where they were. It is so with bad habits.

PRaises are valuable only when they fall from lips that have courage to coudemn.

LIVE to be useful. Live to give light. Live to accomplish the end for which you were made, quietly and steadily shine on, trying to do good.

GETTING in debt is like a mouse getting into a trap—very easy going, but extremely difficult getting out.

We are prone to judge others narrowly by their particular acts. We like ourselves to be judged generously, by our spirit.

THERE is no sin we can be tempted to commit, but we shall find a greater satisfaction in resisting than in committing.

Do daily and hourly your nearest duty. Never mind whether it be known or acknowledged; in the hithersome "sometime," it will have its reward.

SWIFT says: "It is with narrow-souled people as it is with narrow-necked bottles, the less they have in them, the more noise they make in pouring it out."

MANY who bear the loss of a dear child, or of all their property, with the most heroic fortitude, are entirely vanquished by the breaking of a dish, or the blunder of a servant.

Life too Short, Yet Wasted.

Pliny makes a striking computation in regard to the shortness of life. We never recall it without being powerfully impressed by its truth. "Consider," he says, "the time spent in sleep, and you will find that a man actually lives only half his space. The other half passes in a state resembling death. You do not take into account the years of infancy, which are destitute of reason, nor the many diseases and the many cares of old age, those penalties of longevity. The senses grow dull, the limbs are racked, the sight, the hearing, the power of walking, the teeth also, die before us; and yet all this time is reckoned in the period of a life." But short as life is at the best, those who complain of its brevity let it slide by them without wishing to seize and make the most of its golden moments. How much time do we waste in indecision, in vain regrets, delusive hopes, and ungrounded fears! What a vast portion of our previous existence is wasted in mere *waiting*—waiting for something that seems necessary for our happiness, and the want of which prevents us from enjoying the present hour.

THE TRUE MAGNET.—The power of the magnet gains nothing from the gilder's or the graver's art; its attraction lies in itself and is diminished by foreign accretions. So it is with the greatest of all magnets of which Christ spake when He said: And I, if I be lifted up, will draw all men unto me. We may draw men to ourselves by genius, eloquence, eccentricity, but we can draw men to Christ only by attraction of the Cross.

STUDY AND READING.—It has been wisely said, "Beware of the man of one book," that is of the man who has devoted his whole attention to the critical study of any one book. Such an individual proves a very dangerous antagonist in the intellectual arena, and is apt to make sad havoc among good people who read everything but acquire nothing—a vice rather prevalent among men just now.

A HEN with a solitary chicken will often make tenfold the fuss of another with a brood of a dozen or more. The principle is frequently illustrated in life. There are many such hens among the men and women of society. Fuss and feathers not unfrequently tell more than fact and substance.

PEOPLE'S DESIRES.—Some desire to be considered pre-eminently good, others rationally so, and others again are satisfied if their conduct places them beyond the reach of censure.

ADORATION.—Every man cherishes in his heart some object—some shrine at which his adoration is paid, unknown to all save his God.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite theidental.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

CO-OPERATIVE UNION
Grocery and Provision Store
removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-1f

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.
24v21-3m

JOHN ROAOH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier.
19v16-3m

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
v12-3m SAN FRANCISCO,

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Dalo Rope and Whale line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Minn.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
E. Corner of Mission and Fremont sts.,
6v14f SAN FRANCISCO

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19


L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacture on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.
Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.
BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-47

DR. F. HILLER,
Homeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco.
m4-6m

Eastern Advertisements.



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

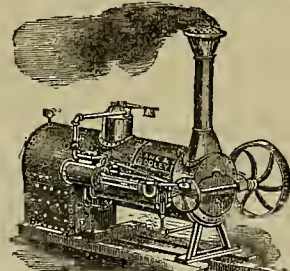
Stamp Mills with all late
Improvements.
Send for prices and information. Address
C. F. HENDRIE, Prest, R. J. CORY, Secy & Treas.
1v22-3m eow Council Bluffs Iowa.
(ESTABLISHED 1820.)

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO,

Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers
OF THE For cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. m411-6m



LANE & BODLEY'S


PORTABLE STEAM ENGINES.
From eight to twenty-five horse power, adapted to Farm, Plantation, Saw and Grist Mill use.
OUR PORTABLE ENGINES excel in having capacious wrought iron Steam Dome, with Man Head giving free access to the boiler, wrought iron Smoke Head, Lift and Force Pump, and for beauty of design and efficiency.
ALSO, Stationary Engines, Boilers, Saw Mills, Shafting and Wood-working Machinery.
AGENTS. Catalogues furnished on application.
W. L. Cushing, New Orleans John P. Dale, Nashville, Tenn. LANE & BODLEY, G. S. Wormer & Son, Detroit John & Water St. Cincinnati, O.

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.
Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 AND 45 FRANKLIN STREET, CHICAGO.
An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? m418-3m



BANK LOCKS VAULT WORK

HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

1st—They have never been Destroyed by Fire.
2d—They have never been Robbed by Burglars.
3d—They are Fire, Damp and Burglar Proof.
4th—They are Superior in Finish to any Safe made.
5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
7th—We will put from \$1,000 to \$10,000 behind them.
8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

77 SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue. m411-6m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone
Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smut- ters, Corn Shellers, Flour Pack- ers, Hominy Mills, Belting, Picks and Mill Work generally.
SEND FOR DESCRIPTIVE PAM- PHLET.

ISAAC STRAUB & CO.,
Cincinnati, Ohio.

Substantial Success Based on Merit.

THE
IRON WORLD AND MANUFACTURER

IS PUBLISHED WEEKLY AT
Pittsburgh, Pa.,
AND IS THE LEADING—IF NOT THE ONLY—REP- RESENTATIVE JOURNAL OF THE METAL TRADES PUBLISHED IN THE UNITED STATES.

Located in the very centre of the metal interests of the United States, with offices and correspondents at the leading cities in the East, West and South, we do not err in claiming that it is the REPRESENTATIVE JOURNAL of the Metal Manufacturers, Workers and Dealers of this country.

THE IRON WORLD AND MANUFACTURER has a large and extended circulation throughout the United States, and is taken by Iron and Steel Manufacturers, Machin- ists, Founders, Hardware Dealers and Tanners, Gun- smiths, Plumbers, Cutlery Manufacturers, File Manu- facturers, Saw Manufacturers, Boiler Manufacturers, and by

Leading Railway Officials.

It advocates protection to American Manufacturers. Its markets are full and reliable. If you are a manu- facturer, take the journal that advocates your interests. Don't patronize Free Trade journals, but help those who help you.

With Free Trade the manufacturers of this country would be ruined. English gold is scattered with a lib- eral hand to further Free Trade. Expend some of yours to favor Protection.

If you advertise, which is the best medium? Circula- tion being equal, which would you patronize—a Free Trade journal or a Protection journal? Circulation is considered the value of an advertising medium. Much depends on the character of the circulation. The New York Weekly Tribune claims 200,000 circulation, and gets from two to five dollars per line for advertising. The Iron World reaches more people engaged in the metal business than the New York Tribune. Our rates are about ten cents per line. Which will pay the best?

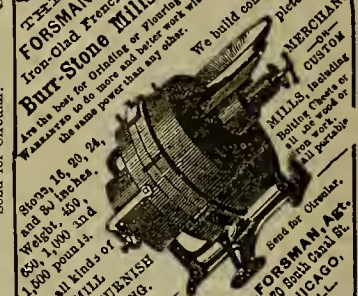
Sample copies mailed Free. Address
IRON WORLD PUBLISHING CO.,
No. 71 Grand street, Pittsburgh, Pa.

OWENS, LANE, DYER & CO.
MANUFACTURERS OF
The Eclipse Saw Mills,
Combining THREE PATENTED Improvements
Essential to The Well Working of Circular Mills.



HAMILTON, OHIO

WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery,
With the celebrated
STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo



Send for Circular.

FREE
FORSMAN
Iron-Old French
Butt Stone Mills
Are the best for Grinding or Planing
Manufacture to do more and better work with
the same power than any other.
We build com- plete
MILLS including
Bearing Chucks or
in stock or
to order.
J. A. FORSMAN & Co.
36, 70 East Main St.
CHICAGO, ILL.

Phoenixville Bridge Works
OF PENNSYLVANIA.
CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
New BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new
Album of Designs,
showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
preparing to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-ly

DICKINSON'S
Patent Shaped Diamond Carbon-Points.




Fig. 1 Fig. 2 Fig. 3 Fig. 4


Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truening up Hardened Steel, and for other mechanical purposes. Also Olaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engi- neering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

The Illustrated Excelsior Magazine

Has been reduced from \$2.50 to \$1.00, and is now one of the CHEAPEST in the world. The illustrations alone are perhaps worth more than the cost, and the beautiful STEEL ENGRAVING of Evangeline (postage, etc., being sent) is given. Size of paper on which the steel en- graving is printed is 2 feet by 19 inches. The Magazine contains Stories, Pictures, Puzzles, Music, a Lady's Department, with illustrations of ladies' patterns; a Youth's Department, etc., etc.

I hereby specially offer the Magazine for One Year, also this splendid Steel Engraving for the regular sub- scription price, \$1.00, and 8 cents for postage and pack- ing of engraving on rollers. Sample copy 10 cents. Address the Publisher, C. L. VAN ALLEN, 171 Broad- way, New York. m25-1f

Established 1848.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms



JOSEPH GILLOTTS
STEEL PENS.
Sold by all Dealers throughout the World.

E. J. FRASER, M. D.,
SURGEON,
No. 108 Stockton Street, S. F., Cal

New Publications.

HARPER'S MONTHLY MAGAZINE. Harper & Brothers, Publishers, 327 to 335 Pearl street. Franklin Square, New York.

The May number of *Harper's* has just been received. The magazine is an old friend, and we have on our book-shelves a long row of bound volumes. We often take them down for a half hour's recreation and never fail of pleasure in perusing them. In the present number we have, although pressed with work, read several articles, and have been beguiled into spending more time over the pages than we could well afford. We must even confess to having found the Tragical Comedy, or Comical Tragedy, of Punch and Judy of sufficient interest to cause us to finish it at one reading, and to have been highly amused at the engravings. No doubt there is much better matter in the magazine, and none of it is bad, we are ready to guarantee.

WHAT I KNOW OF FARMING: A Series of Brief and Plain Expositions of Practical Agriculture as an Art based upon Science. By Horace Greeley, New York: Published by the Tribune Association. 1871. 8 vo. pp. 353.

What we think of the series of papers which make up this book, has been sufficiently indicated by the fact that we have published them as they appeared in the *N. Y. Tribune*. This was the highest commendation which we could give, and we think that further comment would be superfluous. We advise all our readers interested in agriculture, however, who have not read the papers, to get the book and judge of its merits for themselves. We give here place for a few extracts from the preface with regard to Mr. Greeley's qualifications.

I only lay claim to an invincible willingness to be made wiser to-day than I was yesterday, and a lively faith in the possibility, nay, the feasibility, the urgent necessity, the imminence—of very great improvements in our ordinary dealings with the soil. I know that a majority of those who would live by its tillage feed it too sparingly and stir it too slightly and grudgingly. I know that we do too little for it, and expect it, thereupon, to do too much for us. I know that, in other pursuits, it is only work thoroughly well done that is liberally compensated; and I see no reason why farming should prove an exception to this stern but salutary law. I may be, indeed, deficient in knowledge of what constitutes good farming, but not in faith that the very best farming is that which is morally sure of the largest and most certain reward.

I hope to be generally accorded the merit of having set forth the little I pretend to know in language that few can fail to understand. I have avoided, so far as I could, the use of terms and distinctions unfamiliar to the general ear. The little I know of oxygen, hydrogen, nitrogen, etc., I have kept to myself; since whatever I might say of them would be useless to those already acquainted with the elementary truths of chemistry, and only perplexing to others. If there is a paragraph in the following pages which will not be readily and fully understood by an average school-boy of fifteen years, then I have failed to make that paragraph as simple and lucid as I intended. * * * And, whatever may be the judgment on this slight work, I know that, if I could have perused one of like tenor half a century ago, when I was a patient worker and an eager reader in my father's humble home, my subsequent career would have been less anxious and my labors less exhausting than they have been.

THE SAN FRANCISCO DIRECTORY for the Year commencing April, 1871. Compiled by Henry G. Langley, 612 Clay street, S. F.

This, Langley's twelfth annual directory of this city, has just been published, and sustains the high reputation which it has acquired. We have noticed, in another place, the remarks on the population of our city, which gives us a better showing than did the census which is here shown to be quite incorrect. The volume contains 904 octavo pages, exclusive of advertisements, including over 630 pages of names. It is prefaced by a new map of the city, and gives a directory of streets, public offices, societies, etc., list of civic and military organizations, sketches of public works and buildings, notes on the progress of the city, on railroads, etc., a chronological history, statistics of population, finance and manufactures, and a variety of other matter. The work is of course indispensable to every office, shop and counting room.

THE OVERLAND MONTHLY. John H. Carmany & Co., Publishers, 409 Washington street, S. F.

The *Overland* for May is also at hand. We have said elsewhere that it is good.

We now pronounce it better. The *Overland* is, however, a bone of contention in our office, for so many strive to get hold of it first, and each one wishes to retain it so long. We have present possession, and have nearly finished it, and until we have read every article, we shall keep it safely stowed away for our next leisure moment.

THE BRITISH QUARTERLY REVIEW. January, 1871. New York: Leonard Scott Publishing Co., 140 Fulton street.

The first number of the American reprint of the *British Quarterly Review* has just been sent to us by the Leonard Scott Publishing Co. Briefly, its contents are as follows: The American Press, International Coinage, The Malmesbury Papers, Explorations in Palestine, Early Sieges of Paris, Established Church in Wales, Greek New Testament of Dr. Trevellick, the War of 1870, and a very valuable miscellany of Contemporary Literature. This review now takes the place left vacant by the discontinuance of the *North British Review*; and there is every prospect of its becoming quite as popular as any of the series. The present number is furnished without charge to all who had subscribed for the *North British* for the current year.

Mineral Deposits of Eureka District, Nevada.

We copied an article on this subject, a short time ago, from our lively cotemporary, the *Eureka Sentinel*. We took occasion to make a query for more explicit information concerning a statement which seemed to imply that the irregular superficial bodies of ore were changing at a lower depth to regular veins. That the character of the ore changed with the depth we did not doubt; our question related to the form of deposits, and we asked the question, not as a mere matter of technical terms, but for more explicit information as to a matter of facts. As the *Sentinel* replies, we give place to its answer, which we condense, taking only what pertains directly to the matter. Our friends of the *Sentinel* will understand that we condense simply because a weekly journal cannot expand articles on all subjects. But we are careful to give the gist of the answer in the paper's own words. Believing the *Sentinel* to be as fair in giving facts as it is earnest in helping the interests of its section, we venture on another query concerning an important matter. Can it give us more information as to the change of character of the ore, especially with regard to the "decreasing percentage of the baser metals."

We say, then, that in many instances, within the limits of Eureka mining district, the oxides and carbonates found on the surface appear to be gradually replaced by sulphurets and chlorides as depth is attained, or, in other words, the "smelting ores" of the surface show a decreasing percentage of the baser metals as depth is attained, gradually developing into "milling ores" of which quartz, quartzose, or even silicified limestone constitutes the gangue, the silver taking the forms of sulphurets and chlorides. A yet more concise and specific definition may be—that the predominant ochery gangue of the surface changes, at varying depths, into calcareous and quartzose, while simultaneously the predominant metallic mineral changes from carbonates and oxides on the surface, into sulphurets and chlorides below. Sometimes the ores thus developed in the deeper workings are found in a compact mass or solid body of gangue; and so far as observation can yet be made, show every indication of continuance. In other instances, again, they take the form of huge boulders or detached bodies, apparently liable at any time either to "peter out" or open into a continuous body of ore.

In the instances which have come under our notice, while the change from oxides and carbonates into sulphurets and chlorides is clearly evident, there has been no development of a true fissure vein. [Our italics—En. Press] in the literal scholastic acceptance of the term. But on the other hand, we can truthfully and explicitly state that the Eureka mining district possesses abundant and marked characteristics of extent, wealth, and permanence in its mines. We have, indeed, a huge mineral belt, within the well defined limits of which are found masses, bodies, or deposits (call them what you will), of good paying ore. And though we cannot speak of "well defined walls," the accompanying "clay selvage," etc., we can say explicitly that we have quantity and quality.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

DOCILE Q. M. Co. Sierra county.—April 14. Capital stock, \$1,000,000 in 10,000 shares: F. Smith, W. H. Sears, H. Everett, J. Belden and W. Cadwallader.

CALIFORNIA M. Co. Sutter Creek Mining Dist.—April 24. Capital stock, \$1,600,000 in 8,000 shares. Trustees: D. D. Colton, M. S. Latham, J. D. Fry, H. K. White and G. Wallace.

EXCELSIOR G. M. Co. Tuolumne county.—April 24. Capital stock, \$2,400,000 in 24,000 shares. Trustees: G. F. Wright, J. Keytzen J. L. King, F. J. Thibault and E. Chatin.

The following have been recorded in the Secretary of State's office, Sacramento:

ALTONA No. 1 GRAVEL M. Co. Grass Valley.—April 7. Capital stock, \$600,000 in 12,000 shares. Trustees: W. A. Bateman, A. W. May, J. B. Overton, A. Shepherd and D. Wilber.

GREAT CREYS M. Co. El Dorado county.—April 14. Capital stock, \$200,000 in 2,000 shares. Trustees: G. Rowland, A. Wilcox, Hart Fellows, M. Maus, J. M. Greiss, Henry Fellows, A. C. Vaillant and C. S. Leonard.

SOUTHERN PACIFIC R. R. Co.—April 15. Capital stock, \$70,000,000 in 700,000 shares. Directors: L. Tevis, L. Stanford, C. Crocker, C. P. Huntington, M. Hopkins, C. Mayne and P. Donahue.

BEAR CREEK AND MERCER RIVER CANAL AND IRRIGATING Co.—April 24. Capital Stock, \$100,000. Trustees: P. Carroll, J. Morton and C. M. Blair.

VALLEY M. Co. Napa City.—April 24. Capital stock increased from \$30,000 to \$300,000.

SEATTLE COAL M. Co.—April 25. Capital stock, \$600,000.

Meetings and Elections, Etc.

PACIFIC GLASS WORKS.—April 13. Trustees: R. K. Patridge, J. Anderson, C. Kohler, S. Sweet and J. Taylor.

MONITOR AND MAGNET CONS. S. L. M. Co.—April 20. Trustees: S. D. Woodhull (President), J. F. Woodman, F. Reich, N. Boukolsky and P. Falk. Secretary, L. Kaplan.

HOPE GRAVEL M. Co.—Trustees: W. H. Sharp (President), G. F. Sharp, S. Steinhart, E. Norton and L. Teese Jr. Secretary, L. Kaplan.

SOUTH EUREKA M. Co.—April 24. Trustees: J. W. Mather, G. W. Ramage and W. H. V. Cronise.

NEW INRIA M. Co.—April 24. Trustees: W. E. Barron (President), T. Bell, D. O. Mills, W. C. Ralston and W. Buring. Secretary, E. Mickle.

NOONDAY S. M. Co.—April 24. Trustees: M. J. McDonald (President), O. H. Bogart, L. Vesaria, T. J. Owens and G. W. Cope. Secretary, C. E. Eliott.

SALT LAKE CITY.—Chas. Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., & Co., 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

ALVARADO, March 13, 1871. MESSRS. DEWEY & Co.—Gentlemen: I am happy to acknowledge the receipt of my letters patent on Mop Holder. I am entirely satisfied with the manner in which you conducted my case. I can assure you that I shall not fail to recommend your method of business to all others having patents to obtain. Yours, etc., JNO. BREZEE.

PERSONAL.—Wm. H. Murray, representing the SCIENTIFIC PRESS, of San Francisco, California, called on us this week. He is visiting the principal manufacturing points in the United States in the interests of said journal. The Press is a fine looking sheet, same size as the *Scientific American*, and is now in its 23d volume.—Iron World, Pittsburg.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-hp-t

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the country. The collection, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanic's Institute, care J. H. Gilmore, San Francisco.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and special handy for reference.

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. I. Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N., Long. 121° 29' 44" W. Height at Levee above mean low tide, at San Francisco, 74 feet. Height of low surface of mercury, 34 feet. The amount of cloudiness designated by figures, 10 being entire cloudiness; 5, half cloudiness; 0, entire clearness; and intermediate numbers in proportion. The force of the wind is also registered in the same manner; 0 being a calm, 1 a very light breeze and 10 a hurricane. The means are derived from three daily readings at 7 A. M., 2 P. M., and 9 P. M., in conformity with the arrangements of the Smithsonian Institute.

1871.	DAILY MEANS OF				WIND.	R.
	Barometer Corrected.	Therm. Air.	Therm. Surface.	Therm. Rain.	Direction & Force.	Amount.
MONTH AND DAY.						
APRIL.	INCHES.	DEG.	DEG.	INCHES.	DIR.	QTY.
Sunday, 16	29.557	48	70	0.240	10	4.00
Monday, 17	29.714	51	61	0.201	8	0.25
Tuesday, 18	30.307	50	61	2.45	2	0.25
Wednesday, 19	30.278	58	64	0.329	2	0.25
Thursday, 20	30.183	59	68	0.328	1	0.25
Friday, 21	30.016	67	68	0.276	2	0.25
Saturday, 22	29.793	67	53	0.353	0	0.25

* Thermometrical. † Rain.

REMARKS.—The week has been characterized by meteorological phenomena of rare occurrence. But slight variations in the pressure of the atmosphere, and the absence of either abrupt or great oscillations in the barometric column, have hitherto indicated the tropical features of the climate. The first decided exception to this rule is now found in an unprecedented fall in the mercury, from 7 A. M. of the 17th to 9 P. M. of the 18th, of .74 of an inch in 2 hours; i. e., from 30.304 inches, at the former date, to 29.564 at the latter; corrected for temperature. To give an idea of the extremely exceptional character of this phenomenon we would add that from our carefully noted hourly observations, the mean difference of the successive means above or below the annual average, is found to be not more than one-eighth of an inch, and that the highest and lowest monthly mean there is found only a fraction over one-fourth of an inch. The extreme annual range is also small. The highest reading ever recorded was on the 19th of December, 1856 (30.619), and the lowest on the 26th of January, 1865 (29.497). This extreme range, however, of 1.122 inches was not sudden, but occurred during an interval of eight years. As might be expected, such perturbations in the atmospheric pressure were not unattended with disturbances in the electrical equilibrium. During this downward tendency of the mercury, on the 17th, between 1 and 5:30 P. M., a thunder storm, as violent as it was uncommon, passed over this locality. During this half hour 1.12 inches of rain and hail fell. Previously during the same rain storm .475 inches had fallen. This brings up the total rainfall here to 1.19 inches. As a matter of fact, being chronicled, we here with append from the *Daily Record* of the 18th of April a popular and circumstantial account of the most remarkable thunder storm ever witnessed by us during 21 years residence in California:

Feaks of Lightning.
"A curious phenomenon occurred about half past five o'clock last evening. At that time a heavy black cloud which overhung the city was suddenly rent, and from it burst forth a vivid flash of lightning—the sharpest flash we have ever seen in California—which was immediately followed by a tremendous peal of thunder, which in its turn was succeeded by a blinding shower of rain, lasting some eight minutes. The flash of lightning was guilty of some few freaks. As a matter of course the telegraph wires were affected by the electricity, which however failed to reverse the instruments but contented itself with merely passing through the offices with the "snapping" always consequent upon such visits. In the office at the depot the electricity entered upon all the twelve wires, making a report as loud as that of a gun. A gentleman engaged in the Central Pacific Company's repair shop, near the Yolo bridge, and who was standing in the doorway at the time, informs us that he distinctly saw the lightning running along the iron track in front of the building, and that it was snapping and sparking at a terrible rate. At the round house it had a more tangible effect, as the lightning struck one of the cupolas, or ventilators, on the roof, passing through it, tearing off several of the slats and knocking out two of the stanchions which supported it inside. The lightning struck finally in the slough behind the round house. Near the building was standing the engineer of the locomotive Vesuvius, who was about to take out his engine. He was knocked down upon his knees by the electricity, but felt no effects from the shock afterwards. At the repair shop near the bridge two men were prostrated, and it was quite a time before one of them recovered from the effects of the shock, which was made apparent by a soreness of his arms and legs. The man who has charge of the telegraph battery room at the depot was also knocked down, but was not seriously affected. At the residence of A. J. Otterson, on Jibboom street, Mrs. Otterson stood looking out of the rear kitchen window when the lightning struck two trees, one only about ten inches from the window and the other some fourteen feet away, seaming and scarring them somewhat. She felt no effects from it. On the contrary, Otterson and his children, who were at work in the yard, were very visibly affected by the shock, all of them being lifted from the ground by it. This flash was followed by two less vividness and two more great peals of thunder, after which all remained quiet, and soon after dark not a cloud was to be seen."

RAINFALL IN SAN JOAQUIN.

EDITORS PRESS:—In your issue of April 6th you inserted a table of rain in this locality from October, 1868, to the first of this month. We have been favored with rain twice since that communication was sent you. From April 4th to the 7th we received 3.30 of an inch. Yesterday (April 28th) we received 1.31 inches, making, in all, for April, so far, 4.61 inches. In this last rain we had just twice as much as in the whole six months previous. Indeed, it is the largest amount of rain that has fallen in this locality within 2 years, since February, 1869. Yesterday's storm was a most extraordinary one for this part of California. An inch and a quarter of rain fell in four hours—from 10 A. M. to 2 P. M. This was accompanied by loud peals of thunder, such as we have had but once before in the last three years. At noon hail commenced falling in great quantities, and soon the ground was as white as if covered by snow. In one place where it rolled from the roof of a shed, it remained for hours after the rain in a pile 20 feet long, a yard and a half wide, and an inch and a half deep in the middle. It was not unusually large, but about the size of garden peas. We have heard of no injury it did to grain. The entire amount of rain up to date in this locality for the present season is now 6.75 inches.

April 18, 1871. J. W. A. WRIGHT.

THE MOST
Important Improvement
EVER MADE ON
SEWING MACHINES
CAN BE SEEN IN USE AT THE
HOWE SEWING MACHINE OFFICE,
No. 113 Kearny Street.
H. A. DEMING, Agent.

Read the following endorsement, signed by our most
prominent physicians:
We, the undersigned, practicing physicians of San
Francisco, having examined and witnessed the operation

MILLS' ADJUSTABLE TREADLE,
For Sewing Machines, take great pleasure in giving our
testimony to the great value of the improvement, in a
salutary point of view.

The peculiar feature of this new Treadle is
that the Foot-board is made Adjustable, both
vertically and Longitudinally, so that whatever
the size or shape of the foot or shoe, the True
Center of Motion of the Foot may Always be
brought to Coincide with the Center of Motion
of the Treadle, and held there, thus Permitting
the Feet to Move on their Natural Centers
Without Having First to Overcome the Inertia
and Weight of the Heavier Limbs.

In our opinion it possesses the following important
advantages over the ordinary Treadle:

First—It saves the excessive labor and waste
of power consumed in keeping up the rapidly
alternating motion of the lower limbs and body
whenever the machine is run with any speed.

Second—It avoids the frequent and serious
injury to female health resulting directly from
that motion.

By the general adoption of this Treadle we believe the
only serious objection to the foot-power sewing machine
will be removed, and that so far from being prejudicial
to the health of the operator, its use will prove as harm-
less and positively beneficial as other physical exercise,
ending directly to develop the muscles of the calf of
the leg, strengthen the ankle, restore the elasticity of
the foot, and promote circulation in the extremities.

Signed,
H. H. TOLAND, M. D.,
President Toland Medical College.
G. HOLLAND, M. D.
H. H. HUBBARD, M. D.
J. CAMPBELL SHORR, M. D.,
Ex-Professor Physiology Toland Medical College.
C. M. BATES, M. D.,
Health Officer,
(Constituting the San Francisco Board of Health).

L. J. HENRY, M. D.,
WM. F. HALE, M. D.,
BENJ. D. DEAN, M. D.,
President Medical Society of City and County of San
Francisco.

WM. T. OARWOOD, M. D.,
DAVID WOOSTER, M. D.,
R. BEVERLY COLE, M. D.,
Professor of Obstetrics Toland Medical College.
J. P. WHITNEY, M. D.,
Emeritus Professor of Physiology, University of the
Pacific.

L. C. LANE, M. D.,
Professor of Surgery, University of the Pacific.
C. T. DEANE,
Professor of Diseases of Women and Children, Toland
Medical College.

I have carefully examined the new Treadle attached
to the Howe Sewing Machine, and consider it a most
valuable improvement, doing away with most of the
motion of the back and pelvis, which is unavoidable in
operating the old style Treadle, and which has proven
so detrimental to health. I cheerfully recommend it to
those who work much with Sewing Machines, believing
it will save them much suffering.
apl5-1m
S. M. MOUSER, M. D.

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.

Declared by Connoisseurs to be the only good
SAUCE. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire Sauce" to their
own inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask for LEA &
PERRINS' SAUCE, and see that their names
are upon the wrapper, labels, stopper and
bottle.

Somo of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have
been forged, L. & P. give notice that they have
furnished their correspondents with power of attorney to
take instant proceedings against manufacturers and vendors of
such, or any other imitations by which their right may
be infringed.

Ask for LEA & PERRINS' Sauce and see name on
wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worces-
ter: Cross and Blackwell, London, &c., &c., and by
Grocers and Oilmen universally. Agents, CROSS &
CO., San Francisco.
1v22-lyeow

CAUTION.
BETT'S CAPSULE PATENTS
are being infringed by importation of Capsules made in con-
travention of his rights, which necessarily are numerous,
BETT'S being the original inventor and Sole Maker in the
United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND BOR-
DEAUX, FRANCE.

PATENT BROKERS.—Inventors having valuable patents
and needing reliable assistance in selling them should
consult WEISTER & CO., No. 17, New Montgomery street,
under the Grand Hotel, San Francisco.

PACIFIC BRIDGE COMPANY,

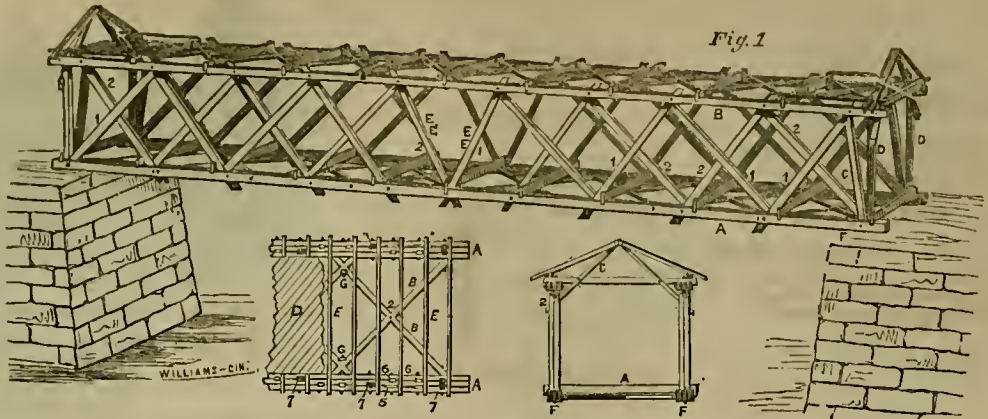


Fig. 1

W. H. GORRILL, OAKLAND, CAL.

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other
Bridge in the following points:
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the
Plan is used. For all Public Bridges the Plan will always be open to competition.

Scientific and Practical
BOOKS
—ON—
MINING, METALLURGY, ETC.
BY GUIDO KUSTEL,
MINING ENGINEER AND METALLURGIST.
Published and Sold by
DEWEY & CO.

Nevada and California Processes of Silver
and Gold Extraction, for general use, and especially
for the Mining Public of California and Nevada, with
full explanations and directions for all metallurgical
operations connected with silver and gold from a pre-
liminary examination of the ore to the final casting
of the ingot. Also, a description of the general metal-
lurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of
information, applicable to all vein miners and workers
in precious metals, affording hints and assistance of ex-
ceeding value to both the moderately informed and the
most expert operator.
Price, \$5 in cloth; \$6 in leather—coin.

Concentration of Ores (of all kinds), in-
cluding the Chlorination Process for Gold-bearing
Sulphurets, Arsenurets, and Gold and Silver Ores
generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, em-
bracing the subjects treated. Its authority is highly
esteemed and regarded by its readers; containing, as it
does, much essential information to the Miner, Mill-
man, Metallurgist, and other professional workers in
ores and minerals, which cannot be found elsewhere in
print. It also abounds throughout with facts and in-
structions rendered valuable by being clearly rendered
together and in simple order. It contains 120 diagrams,
illustrating machinery, etc., which alone are of the
greatest value. Price, \$7.50, postage paid.

Roasting of Gold and Silver Ores, and the
Extraction of their Respective Metals without Quick-
silver. 1870.

This rare book on the treatment of gold and silver
ores without quicksilver, is liberally illustrated and
cramped full of facts. It gives short and concise de-
scriptions of various processes and apparatus employed
in this country and in Europe, and explains the why
and wherefore.

It contains 142 pages, embracing illustrations of fur-
naces, implements and working apparatus.
It is a work of great merit, by an author whose repu-
tation is unsurpassed in his speciality.

Price \$2.50 coin, or \$3 currency, postage free.
For single copies of the above works, or for the trade,
address

DEWEY & CO.,
Publishers and Patent Agents, Scientific Press Office
San Francisco.

Manganese ! Manganese !
We have on hand the Best and Purest
article of Powdered Black Oxide of Manganese
ever sold on this coast. Price, Sixty
Dollars a Ton.

We also offer to consumers
Acids, Sulphate of Copper,
CYANIDE OF POTASS,
And Chemicals of all kinds at Lowest Prices.
FOR SALE BY
R. H. McDONALD & CO.,
Corner First and Market Streets, San Francisco,
22v-17-3m

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday except d	Express Train Daily.	APRIL 1, 1871.	Express Train Daily.	Passenger Sundays excepted
4.00 P.M.	8.00 A.M.	San Francisco	5.45 P.M.	12.30 P.M.
4.42 P.M.	8.40 A.M.	Oakland	5.12 P.M.	11.58 P.M.
7.30 A.M.	San Jose	Stockton	5.40 P.M.	8.35 P.M.
7.58 P.M.	12.10 P.M.	Sacramento	1.45 P.M.	7.00 A.M.
8.35 P.M.	2.10 P.M.	Marysville	9.10 A.M.	
	4.00 P.M.	Seama	4.20 A.M.	
	2.30 P.M.	Sacramento	11.45 A.M.	
	5.25 P.M.	Colfax	8.45 A.M.	
	1.15 A.M.	Reno	1.00 A.M.	
	9.10 A.M.	Winnemucca	4.05 A.M.	
	12.00 M.	Battle Mountain	1.25 P.M.	
	4.40 P.M.	Elko	8.45 A.M.	
	6.10 P.M.	Ogden	5.15 P.M.	

EASTWARD. WESTWARD.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 6.50,
8.10, 9.10, 10.20 and 11.10, a. m. 12.00, 1.50, 3.00, 4.00, 5.15, 6.45 and
11.30 p. m. (10.20, 11.10 and 3.00 to Oakland only).
LEAVE BROOKLYN, 7.15, 8.30, 7.40, 8.50 and 10.00 a. m., 1.30,
2.40, 4.35 and 6.25 p. m.
LEAVE OAKLAND, 7.25, 8.40, 7.50, 9.00, 10.10, 11.00 and 11.50
a. m., 1.40, 2.50, 3.50, 5.05 and 6.35 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7.30, 9.00,
and 11.15 a. m., 1.30, 4.00, 5.30 and 7.00 p. m. (7.30, 11.15 and
5.30 to Fruit Valley only).
LEAVE HAYWARD, 7.30, 7.00 and 10.45 a. m., and 3.30 p. m.
LEAVE FRUIT VALLEY, 7.25, 7.35, 9.00 and 11.20 a. m., 1.30,
4.05 and 5.30 p. m.

*Trains do not run Sundays.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.
AND
Pittsburgh, Fort Wayne and Chicago R. R.

61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York,
WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Provi-
dence, Springfield, New Haven, Worcester, Boston. And
is the most direct route to Washington City.

Express trains on this line are equipped with WEST-
INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them
an opportunity of seeing the finest views among the
Alleghany Mountains, besides visiting Pittsburgh, Phila-
delphia and New York without extra cost.

All New England Passengers holding through
tickets will be transferred, with their baggage, to Rail
and Boat connections in New York WITHOUT CHANGE.

Through Tickets via, this great short route for sale in
San Francisco, at 422 California street, 208 Montgomery
st., 306 Montgomery st., and at Ticket office of Central
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne,
Denver and Omaha. Be sure your tickets read via
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago
route. T. L. KIMBALL, Gen'l. West. Pass. Agt.
Chicago, Ill.

J. R. ERRINGER, JR., Travelling Agent,
4v22-ly San Francisco, Cal.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the
Scientific Press, we are obliged to go to press on Thursday evening
—which is the very latest hour we can receive advertisements.

Mauntauca Silver Mining Company—
White Pine District, Nevada.
Notice is hereby given that at a meeting of the Board of
Trustees of said Company, held on the 24th day of April,
1871, an assessment of five cents per share was levied upon
the capital stock of said Company, payable immediately in
U. S. gold coin, to the Secretary, at the office of the com-
pany, 37 New Merchants' Exchange (third floor), in San
Francisco. Any stock upon which said assessment shall
remain unpaid on the 1st day of June, 1871, will be adver-
tised on that day as delinquent, and unless payment shall
be made before, will be sold on the 15th day of June, 1871, to
pay the delinquent assessment, together with costs of ad-
vertising and expenses of sale.
J. M. BUFFINGTON, Secretary,
Room 37, New Merchants' Exchange, San Francisco.

Caution—North America Consolidated
Mining Company—Location of works, White Pine
County, State of Nevada.

Notice is hereby given, that the following named
shares, designated by the number of their respective
certificates, in the capital stock of the North America
Consolidated Mining Company, as by law provided,
were duly advertised and sold in full at public auction,
by John Middleton & Son, on Thursday, the 27th day of
April, 1871, for delinquent assessments thereon and ac-
cruing costs of advertising and sale, and will not be
transferred by said Company:

Names.	No. Certificate.	No. Shares.	Amount.
A F Collins	16	666	33 30
A F Collins	16	166	16 60
Thos. Cassin	51	166	16 60
W Eversen	14	666	33 30
W Eversen	42	166	16 60
H C Hemenway	19	666	33 30
H C Hemenway	43	166	16 60
P F Mohrhardt	44	166	16 60
J A Steele	43	166	16 60
W J Taylor	49	166	16 60
A F White	4	1000	50 00
A F White	38	250	25 00
Thos Wells	6	1000	50 00
Thos Wells	39	250	25 00
W E Wood	50	166	16 60

W. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Fran-
cisco, Cal. ap23-1v

Mina Rica Mining Company—Location of
works, Auburn Mining District, Placer county, State of
California.

Notice is hereby given, that at a meeting of the Board of
Trustees of said Company, held on the 25th day of April,
1871, an assessment of twenty cents per share was levied
upon the capital stock of said Company, payable immedi-
ately, in United States gold and silver coin, to the Secre-
tary, at the Company's office, Room 2, No. 418 California
street, San Francisco, Cal. Any stock upon which said
assessment shall remain unpaid on the 30th day of May, 1871,
shall be deemed delinquent, and will be duly advertised for
sale at public auction, and unless payment shall be made
before, will be sold on Tuesday, the 26th day of June, 1871,
to pay the delinquent assessment, together with costs of
advertising and expenses of sale. By order of the Board of
Trustees. G. E. R. SPINNEY, Secretary.

Office, Room No. 2, third floor, No. 418 California street,
San Francisco, Cal. ap22-1v5t

Noonday Silver Mining Company—Lo-
cation of works, White Pine Mining District, White Pine
County, Nevada.

Notice is hereby given, that at a meeting of the Board of
Trustees of said company, held on the 10th day of April,
1871, an assessment of twenty cents per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold and silver coin, to the Secretary,
at the office of the company, Room 21, Hayward's Building,
422 California street, San Francisco, California. Any stock
upon which said assessment shall remain unpaid on the
Fifteenth day of May, 1871, shall be deemed delinquent, and
will be duly advertised for sale at public auction, and un-
less payment shall be made before, will be sold on Wednes-
day, the seventh day of June, 1871, to pay the delinquent
assessment, together with costs of advertising and expenses
of sale. By order of the Board of Trustees.

CHARLES E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street,
San Francisco, Cal. ap15-5w

Taylor Mill and Mining Company—Lo-
cation of works, Georgetown District, El Dorado County,
State of California.

Notice is hereby given, that at a meeting of the Board of
Trustees of said Company, held on the 14th day of April, a.
1871, an assessment of twenty-five cents per share was
levied upon the capital stock of said Company, payable im-
mediately, in United States gold and silver coin, to the Sec-
retary, at the office of the Company, No. 620 Montgomery
street, San Francisco, Cal. Any stock upon which said
assessment shall remain unpaid on the twenty-fourth day of
May, A. D. 1871, shall be deemed delinquent, and will be
duly advertised for sale at public auction, and unless pay-
ment shall be made before, will be sold on Monday, the 12th
day of June, A. D. 1871, to pay the delinquent assessment,
together with costs of advertising and expenses of sale. By
order of the Board of Trustees.

SAMUEL S. MURPHY, Secretary.
Office, 52, Montgomery street, over Sather & Co's Bank
San Francisco, Cal. ap22-5w

Yosemite Consolidated Mining Company—
Location of works, Santa Fe District, Lander County
State of Nevada.

Notice is hereby given, that at a meeting of the Board of
Trustees of said company, held on the twelfth day of April,
1871, an assessment (No. 4) of one dollar per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold coin, to the Secretary, at his
office, No. 28 Merchants' Exchange, San Francisco. And
stock upon which said assessment shall remain unpaid on
Monday, the twenty-second day of May, 1871, will be de-
clared delinquent, and will be duly advertised for sale at public
auction, and unless payment shall be made before, will be
sold on Monday, the nineteenth day of June, 1871, to pay the
delinquent assessment thereon, together with costs of ad-
vertising and expenses of the sale. By order of the Board
of Trustees. DAVID WILDER, Secretary.

Office, No. 28 Merchants' Exchange, California street,
San Francisco, Cal. ap15-1m

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-qy

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

[Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Entworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qyUNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Unabar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

16v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee
it to stand any pressure required; its lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMERREAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE,At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-qy

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

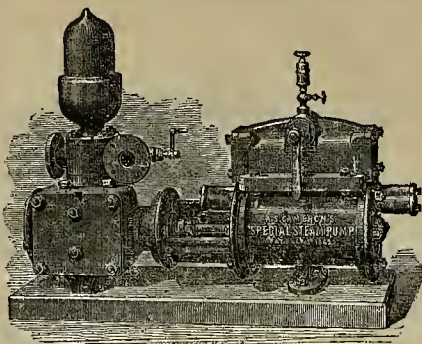
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting,
Embracing ALL SIZES ofSteamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

The highest price paid for Scrap Iron 9v143m



RUSS PATENT

MONITOR MOLDING MACHINE,

MADE BY

R. BALL & CO., Worcester, Mass,

Manufacturers of the latest Improved Wood-working
Machinery for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Facto-
ries, etc., etc. Send for Illustrated Catalogue and Price
List.

RICHARD BALL. E. P. HALSTEAD.

m4-cowly

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.

18 and 15 Fremont street, near Market, San Francisco.

16v14qr

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN.

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

The Stetefeldt Furnace.

For information of any description respecting [this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,

4v21-ly San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna.

SAN FRANCISCO.

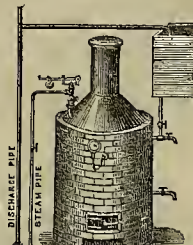
ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and
Screws of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEEB V. KINGWELL.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting,
Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, 318 CALIFORNIA STREET, San Francisco.
25v20-3mSTEAM JET PUMP.
Blackslee & Williams' Patent.—For
Water, Oils, Acids, Etc.The best COLD WATER
pump for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
Agents—Chas. F. Brock, 117 California st., San Fran-
cisco; KEPP & BARGON, Stockton. Can be seen at
McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-tfFor
Steam Pipes
& Boilers Hair FeltingSaves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

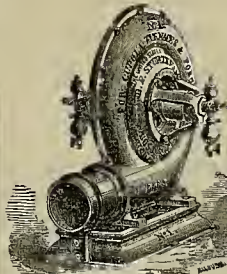
Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

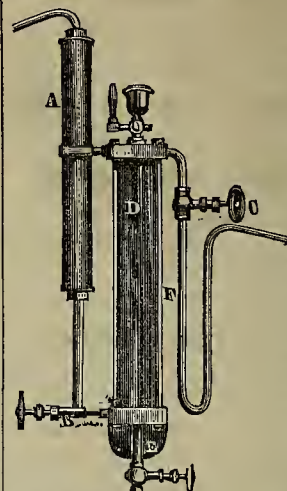
San Francisco,

who have the differ-
ent sizes always in
store. 4v22McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco
2v21-tfTHOMPSON BROTHERS,
EUREKA FOUNDRY,and 131 Beale street, between Mission and Howard
San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D, is a glass chamber which contains
the lubricant. O is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F is the discharge
pipe for the lubricant, provided with an inverted syphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E is a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the action
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and O. 16v1-tf

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee
that the purchasers shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains,
from \$10,000 to \$15,000 is saved in First Cost.The Wilson Mill will save in working expenses and
repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and he all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its
merits. One can always be seen at the Pacific Iron
Works.Ten of these Mills are now in operation.
For further particulars addressFURMAN R. WILSON,
San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

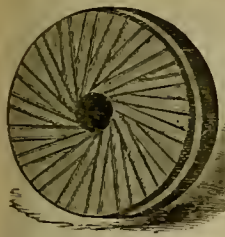
TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated 'Duteh Anchor brand Bolted Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.



from 16 to 36 inches, for grinding Corn, Barley, Feed, &c. 2x22-lyns 41 First et., San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen--Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

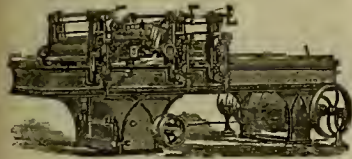
San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DEYNSTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. 27 Best means yet discovered for saving fine particles of Gold, 20x21-4f

WOODWORTH PLANERS



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE, 112 and 114 California street, San Francisco.

Oriental Powder Co.,

MANUFACTURERS OF

Blasting,

Mining, and

Sporting Powder,

Of superior strength and cleanliness.

Patent Compound for Blasting and Mining.

Electric Batteries, Fuses, and Leading Wire for Blasting.

Address

A. W. TAYLOR, Agent,

Corinne, Utah.

Send for Circulars. 18x21-1amt21

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16x20-3m JOHN F. LOHSE, Secretary.

Ahead of the World.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best, Consequently the most Popular Machine in use. The Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,

ap15-3m No. 113 Kearny street, San Francisco.

DARLING & CO.,
Importers, General Agents and Commission Merchants.
Machinery, Merchandize and Supplies of every description Purchased and Sold on
Commission,
AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS

SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of
75 PER CENT OF OIL.

They are composed of a transparent Glass Cap, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed NATHAN & DREYFUS, New York, Jan. 1st., 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

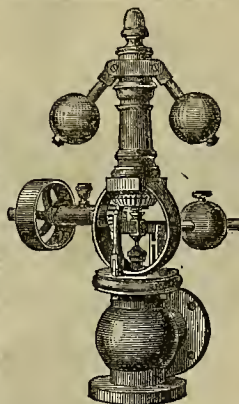
After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement; all the several parts are duplicates of each other in the same series; the most skillful workman employed, the best material used and the machinery employed especially adapted to their manufacture. Thus

We warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK or FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages.

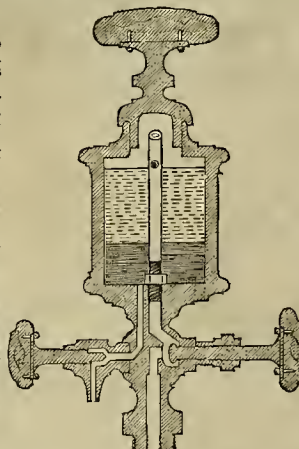
FIRST--Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind.

SECOND--Its great economy of both tallow and fuel.

THIRD--It is self-acting, and supplies the lubricating material only while the Engine is in motion.

FOURTH--Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this cup, by its peculiar action, delivers the lubricant



in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

The above Goods are Sold at Factory Rates.

For Price Lists or information address DARLING & Co., 629, Washington Street,

San Francisco, California.

Traveling Agent--R. K. COLCORD.

5x22eow-6m

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE.....Manager.

J. A. MARS.....Assayer.

Analysis of Ores, Minerals, Waters, etc. 16x20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical

CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint,)

SAN FRANCISCO, CAL.

7x21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS,

4x16-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5x22-ly

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11x21-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First St., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26x21-3m

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE Ransom Patents, the most perfect Sandstone, specimens of which may be seen in the ornamentation of Dr. Stone's Church, now in course of erection, at the corner of Post and Mason streets. For architectural, ornamental and mechanical purposes, this stone surpasses all natural stone of its class.

GARDEN STONES from this factory, which we make of any desired size, may be seen at many of the great mechanical shops in this city, where they are held in high esteem.

The factory is now turning out Architectural Stone, Cemetery Stone, Grindstones, Garden Ornaments, in the way of Vases, Fountains, etc. The nature of the art admits of our moulding the stone in any desirable form, and enables us to compete successfully with all natural stone wrought by hand. In England, where the stone has been manufactured largely for the past fifteen years, it is considered, for durability and strength, to surpass the best English Sandstone. The British Government employs it largely in its public buildings, both at home and in its Colonies; and as we have secured the services of MR. ERNEST L. RANSOM, late Superintendent of the home works at Greenwich, England, we are turning out stone fully equal to the English standard.

For particulars, apply at the Factory, corner Turk and Larkin streets. mal8-4f

STOP PAYING RENT.

San Francisco Co-operative Land and

BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$2.50

PURELY MUTUAL.....Interest, 6 per cent. per year

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. CONGDON, Secretary. apl-3m.

SONORA HOTEL,

T. BRODIGAN.....Proprietor

Best Meals and Beds in Sonora, Cal.

fe25-9m

To Inventors in the Pacific States.

The best, speediest, and surest method for you to obtain patents, file caveats, or transact any other important business with the Patent Office at Washington, or with foreign countries, is through the agency of DEWEY & CO., PUBLISHERS OF THE SCIENTIFIC PRESS, SAN FRANCISCO, an able, responsible, and long-established firm, and the principal agents on this side of the continent. They refer to the thousands of inventors who have patronized them, and to all prominent business men of the Pacific Coast, who are more or less familiar with their reputation as straightforward journalists and patent solicitors and counsellors.

We not only more readily apprehend the points and secure much more fully and quickly the patents for our home inventors, but with the influence of our carefully read and extensively circulated journals, we are enabled to illustrate the intrinsic merits of their patents, and secure a due reward to the inventor, besides serving the public who are more ready to give a fair trial, and adopt a good thing, upon the recommendation of honest and intelligent publishers.

To Obtain a Patent,

A well-constructed model is generally first needed, if the invention can well be illustrated. It must not exceed 12 inches in length or height. When practicable, a smaller model is even more desirable. Paint or engrave the name of the article, and the name of the inventor, and his address upon it.

Send the model (by express or other reliable conveyance), plainly addressed, to "DEWEY & CO., SCIENTIFIC PRESS OFFICE SAN FRANCISCO." At the same time, send a full description, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operations.

Also send \$15 currency, amount of first fee of the Government. The case will be placed on our regular file, the drawings executed, and the documents made up, and soon sent to the inventor for signing.

As soon as signed and returned to us with the fees then due us, it will be sent straightway to the Patent Office at Washington.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case, the applicant has only to send us an exact description, and what is desirable to claim.

For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances for design patents two photographs, with the negative, answer well instead of drawings.

We do not require the personal attendance of the inventor, unless the invention is one of great complication. Usually the business can be well done by correspondence.

For filing a caveat, which affords the inventor protection for one year, we only require a rough sketch, and a clear description of the invention.

It will cost inventors less to have their business thoroughly and speedily done through our agency than to patronize less able and responsible agents.

For further information, send a stamp for our illustrated circular, containing a digest of PATENT LAWS 112 illustrated mechanical movements and HINTS and INSTRUCTIONS regarding the RIGHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAWS of 1870.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Scientific Press and the Pacific Rural Press, San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. O. KIRBY.
Mr. J. H. GILMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

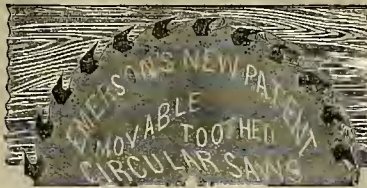
Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

ap8-3m

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BRO. & CO. and LIPPENCOTT & CO.

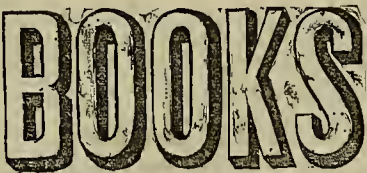
Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

BAIRD'S

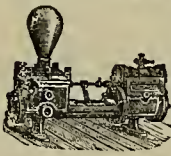


FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

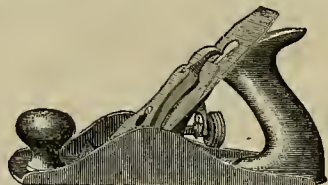
BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

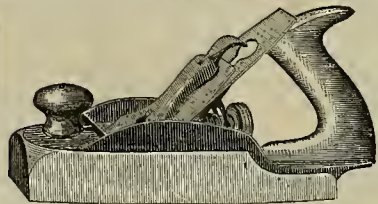
BAILEY'S PATENT
ADJUSTABLE PLANES.

Over 6,500 Planes Sold in 1870.

Every Carpenter, Cabinet-maker, Car-builder, or other skilled Wood Worker, will find it economy to use these Planes.



"The BEST PLANE now in use." CHICKERING & SONS,
Piano Forte Manufacturers, Boston.
"Superior to any others used in this shop." W. S. TOWN, Master of Car Repairs, Hudson River R. R. Co.



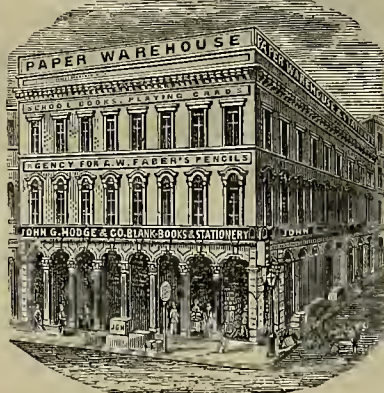
"Works splendidly on our Yellow Pine."
H. C. HALL, Jacksonville, Florida.
"We have Bailey's Planes in our factory, and there is not one opinion about them—they are the best and cheapest tool we have ever used. Good tools are always the cheapest."
JOSEPH BECKHAUS,
Carriage Builder, 1204 Franklin Road, Phil'a.

Manufactured by the STANLEY RULE & LEVEL CO., New Britain, Conn. Warehouse, 55 Chambers street, N. Y. Sold by all Hardware Dealers. Send for Descriptive Catalogue, embracing a full assortment of both the Iron and Wood Planes. ap22-3w

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS,



KEEP A LARGE STOCK OF

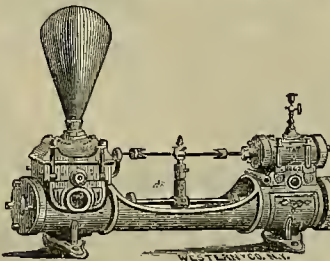
Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

Blank Books made to order from Crew
Ex. Fine Ledger Paper.

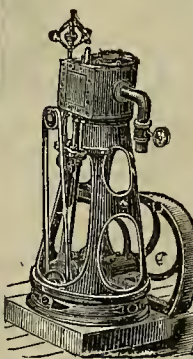
Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabers genuine Lead Pencils.

327, 329 & 331 Sanson St. [San Francisco.
19v21comly

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds
new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p



RIDER'S
Automatic Cut-off

Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

MAGAZINES.

	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godey.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	3 00
Peterson's.....	
Arthur.....	
Lady's Friend.....	5 00
Harper's Weekly.....	
Chimney Corner.....	
Literary Album.....	6 00
London Society.....	
All the Year Round.....	
London Ill. News.....	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and
Washington streets,

SUPPLIES ALL

Eastern Periodicals,

BY THE
Year, Month, or Number.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER
and other material over difficult roads, or from
otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,

Civil and Mechanical Engineer,
619 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS,
Steam, Lignor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Copper
Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Glohes, Steam Whistles. HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe furnished
with Fittings, etc. Coupling Joints of all sizes.
Particular attention paid to Distillery Work. Manufacturer
of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP.
PER AND BRASS. 6-4f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and
economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. 28

Pacific
Insurance Company
No. 422 California St.,
San Francisco
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary
A. BAIRD, Marine Secretary.

OCCIDENTAL
Insurance Company

OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES

KETCHUP, SAUCES,

Canned Fruits and Vegetables of superior quality

621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. 16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 6, 1871.

VOLUME XXII
Number 18.

Automatic Bobbin-Winder for Sewing Machines.

Persons using shuttle sewing-machines have experienced great inconvenience in winding the thread on the shuttle-bobbins. There is considerable loss of time in performing the winding by the winders commonly provided, and much difficulty in winding the thread with that degree of uniformity which is desirable in order to obtain a uniform tension of the under thread, and make a tight and even stitch. The object of the winder represented in the accompanying engraving is to obviate the above inconvenience and difficulty; and besides accomplishing this it enables a larger quantity of thread to be wound upon a bobbin, and the operator is therefore not so often required to change the bobbin. The device is simple, and can be attached to any shuttle sewing-machine without requiring any alteration of the machine. It is the invention of Mr. C. H. Palmer, of New York. The description is taken from the *Amer. Artisan*.

The engraving gives a front view in perspective. *A* is a bracket by which the winder is attached to the side of the sewing-machine table, *T*. *C* is a small frame which carries all the working parts, pivoted to the bracket, *A*, by a pin, *F*, and having interposed between it and the top of the bracket, *A*, a circular disk, *B*, having a projection, *B'*, on one side, which is impinged upon by a set-screw, *V*, screwing through the bracket for the purpose of regulating the extent of motion of the frame, *C*, on the pivot, *F*.

G, *G'*, are two spindles arranged in line to center the bobbin and hold it in position; both supported in bearings on the plate, *C*. The spindle, *G'*, is movable endwise, to allow the bobbin to be put between it and *G*, and is held up to the bobbin by means of a spiral spring, *N*. The spindle, *G*, is so constructed with pins to enter holes in the head of the bobbin as to compel the bobbin to turn with it when the said spindle is driven by the contact of the driving-wheel, *I*, of the sewing machine, with the friction-wheel, *H*, on the said spindle.

Behind the spindles, *G*, *G'*, there is arranged in bearings on the frame, *C*, a horizontal oscillating shaft, *O*, which has one end turned upward to carry the spool, *K*. This shaft has firmly secured to it a pressure-lever, *D*, the face of which is caused by a spiral spring, *R*, to press upon the thread that is wound upon the bobbin, *J*. Below the spindle, *G*, is situated the fulcrum-pin, *a*, of a cam trip-lever, having on one side of its heel a spur, not visible, which acts upon a projection on the heel of the pressure-lever. The toe of this cam-lever bears against the back of the projection, *B'*, on the disk, *B*. In a recess surrounding the pivot, *F*, and between the frame, *C*, and disk, *B*, there is a spiral spring, not shown, which turns the said frame in such manner as to throw the friction-wheel, *H*, out of contact with the driving-wheel, *I*, when it is not locked in

contact therewith by the action of the toe of the cam trip-lever against the projection, *B'*, of the disk, *B*.

The thread passes from the spool, *K*, through guides attached to an upright spindle, *L*, and thence through an eye in the end of a crane-like leading arm, *M*, which is secured to the said spindle, and thence to the bobbin, *J*. The leading arm is free to swing to and fro over the length of the bobbin, its motion depending simply

of the sewing-machine, and lock the frame, *C*, with the wheel in that position, while the spiral spring, *R*, causes the pressure-lever, *D*, to press against the bobbin. The rotary motion of the driving wheel, *I*, then produces the rotary motion of the spindle, *G*, and of the bobbin, and as the thread is thereby wound upon the latter, the leading arm, *M*, moves back and forth with exact regularity, its motion being regulated by the thickness of the thread.

saving the operator's time. Then again the larger quantity of thread—about one-third more—that can be wound on a spool by this winder effects a further saving of time by making the necessity for changing the bobbin less frequent.

To the Yosemite Valley.

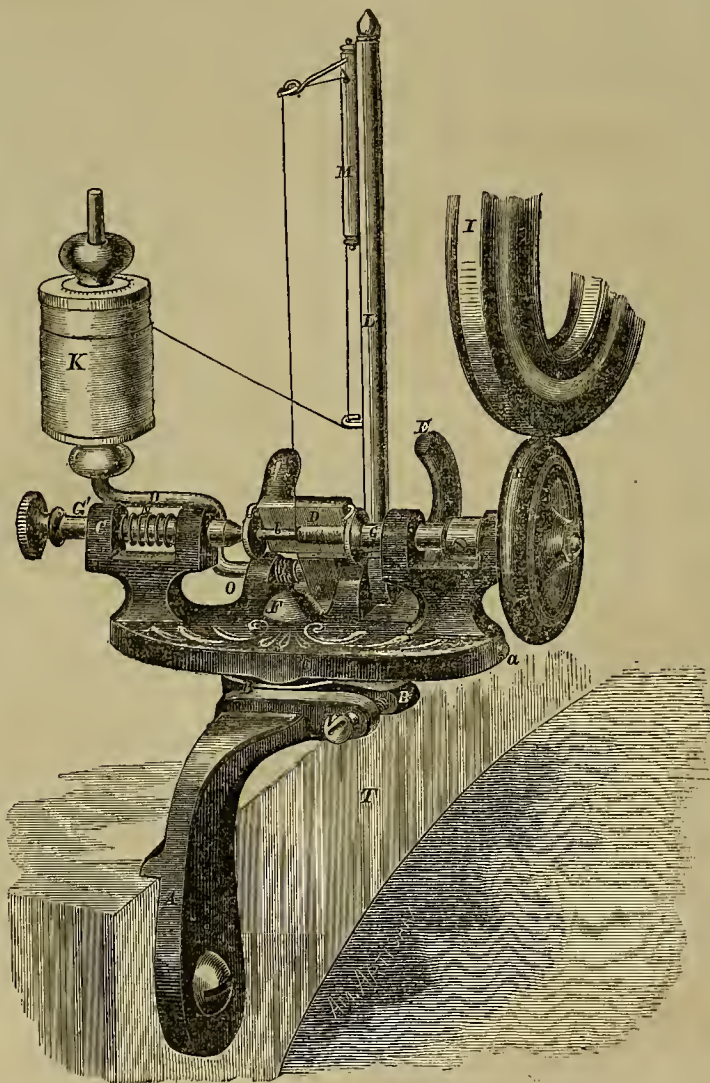
It is to be hoped that our Eastern friends now in this city will not miss visiting other places than San Francisco. Those who have come for pleasure merely, will of course view the different scenes of natural beauty; but too many of our business visitors, strange to say, think that San Francisco is California, and that a stay here of a few days will give them a general idea of the State. Now no one place can represent our State with its varied climates, seasons, conditions and natural beauties and wonders.

The Yosemite is one of our grand points not to be neglected, and now is one of the very best times to visit it. There are several ways to get there. The shortest, easiest and cheapest route is, however, this: By steamer to Stockton, by rail to Milton, by stage to Tamarack Flat via Chinese Camp and Garote, and by saddle train (11 miles) to the Valley. A variation of this, to see the Big Trees, is to branch off from Milton by stage to Big Tree Grove via Angel's and Murphy's, then return to Murphy's and proceed to the Valley via Sonora and Chinese Camp.

There are several reasons in favor of this route besides those of ease, shortness and cheapness. A steamboat trip will be a pleasant change from a railroad ride for our overland friends, besides giving beautiful views of our Bay, the San Joaquin river, Mts. Tamalpais and Diablo, and the country on the way. The hotels on the road are all comfortable and well appointed. More especially, however, the ride through hot, parched and dusty plains is avoided, the route by stage being all the way through a timbered, cool and beautiful country, with magnificent views and easy grades.

However, whatever way they may prefer, let our friends by all means visit the Yosemite. If they take the route indicated, we can vouch for the gentlemanly treatment, intelligence and knowledge of Mr. L. P. McCarty, the general agent at this city, who has been for some time connected with this paper, and who has traversed thoroughly the country along all the routes, besides other sections of our Coast. He may be found at the office of the S. F. Package Express Co., 306 Montgomery street.

THE AGE OF NICKEL.—Some time ago, the Bank of California imported into this city \$5,000 worth of nickel coins, of the denominations of 1, 2 and 3 cents. These are gradually coming into circulation and will possibly effect a desirable revolution in our "bit" and dependent systems. The step is a good one and one of importance to the community, especially to the less wealthy portion.



PALMER'S AUTOMATIC BOBBIN-WINDER FOR SEWING MACHINES.

upon the impinging of the thread against itself as it is being wound upon the bobbin.

To operate the winder, after the end of the thread has been attached to the bobbin, *J*, and the bobbin put in place, the cam trip-lever, *E*, is pushed back until the spur on its heel passes under the projection on the heel of the pressure-lever, *D*. The frame, *C*, and attached working parts of the winder are thus caused to turn upon the center pivot, *F*, by the action of the toe of the cam-lever against the projection, *B'*, and thus to bring the friction-wheel, *H*, into contact with the driving-wheel, *I*,

As the bobbin gradually fills, the thread steadily lifts the pressure-lever, *D*, and by the time it is filled the said lever has been lifted up so far as to let the projection on its heel pass the spur on the heel of the trip-lever, *E*, and so unlock the latter, when the frame, *C*, is instantly turned by the spring before mentioned as arranged around the center pivot, *F*, and the friction-wheel, *H*, being thus thrown out of contact with the wheel, *I*, the winding is thereby automatically arrested.

The automatic stoppage when the bobbin is full enables the winding to be performed while the sewing is going on, thus

MECHANICAL PROGRESS.

IMPROVED ENDLESS SCREW.—Mr. Wm. Goodwin, of New Jersey, has devised a form of the wheel and screw which, unlike the usual form, changes a low velocity into a high one with very little friction. In the usual form, the loss of power is so great, that the screw is generally used to move the wheel, and not the wheel to move the screw; and the arrangement is employed where it is desired to combine great stability in one direction with perfect ease of motion in the other,—as, for example, the steering apparatus of ships. The *Technologist* for April gives the inventor's description as follows:—"The threads and teeth of the wheel and screw, as ordinarily constructed, have a hearing, both while entering into gear, or mesh, and while disengaging; while in the new gear, the threads and teeth do not come to a hearing until the teeth of the wheel have entered into mesh, to the bottom of the groove of the screw. Hence, when the bearing commences, the teeth commence to disengage or draw out of gear, drawing the screw toward the wheel, and thus it is obvious that the friction, caused by the bearing while entering into gear, has been dispensed with by so constructing the teeth that they are fully in mesh before they commence to act or cause friction; also, when the teeth bear, as in the old ordinary gear, while entering into mesh, the screw is strongly pushed from the wheel, thereby increasing the lateral friction in the journal-bearings which hold the screw in position. The lateral friction is also dispensed with by giving to the teeth and threads of the wheel and screw a peculiar pitch and level, which enable them to mesh into gear without coming into contact until they commence to draw out of gear, the level of the thread of the screw being such that the friction, drawing toward the wheel, is equalled by the pressure of the teeth on the bevel of the screw, thus giving the entire pressure lengthwise of the screw-shaft so as to drive it against the step or pivot. Thus it is obvious that the gearing meshes into gear without friction, and draws out of gear with the least possible friction and without lateral pressure, using all the power for revolving the screw, which meets with but slight resistance from the friction of the screw-shaft, the bearings of which are on the end, in the manner of horizontal steps."

BRUNTON'S TUNNELING MACHINE.—The *Engineer* for March 24th, describes this machine. Without diagrams to illustrate a description, we will not attempt one. It cuts a cylindrical tunnel, by means of revolving steel discs advanced as the work progresses by a large screw shaft in the center. To give an idea of the work it does, we quote a short paragraph from the journal aforesaid:—"In driving through the harder rocks, such as grit, mountain limestone, &c., in which the machine would only make a progress of 1 ft. or 18 in. per hour, the amount of debris produced would be such that two men placed one on each side of the machine could easily shovel the stuff as fast as it falls on to the delivery hand. But in softer ground, where the progress would be from 2 ft. to 6 ft. in the hour, men could not shovel fast enough."

WHITWORTH COMPRESSED METAL.—This is now used instead of Firth steel, for the manufacture of the Whitworth gun. The following note upon it is from an article in the *Journal of the Franklin Institute*, by Prof. Thurston, entitled "Iron Manufactures in Great Britain":—"The compression of the metal, which is a 'low steel,' or 'homogeneous metal,' is effected while it is still molten in the mould, by an ingenious method of applying the tremendous force of a hydraulic press. This pressure, which has been carried up to 8 tons per square inch, and which will be increased to 20 tons per square inch, should it be found possible to sustain such a strain, by using moulds encased in the compressed metal, closes the pores, which ordinarily are found so seriously to injure the strength of steel castings, and the metal is given a homogeneity that is usually only obtained by forging under a heavy hammer. It is claimed that a metal can be thus obtained that can be relied upon for a tensile strength of 100,000 pounds per square inch, and a capability of stretching 25 per cent. before breaking."

PROGRESS IN BOILER ENGINEERING.—*Engineering* (London) has the following:—"The increased duty recently obtained from a pound of fuel is almost entirely due to improvements in the engine, and not in the boiler; to heat spending, and not to heat making. In marine engineering the class of boiler introduced with the compound engine is, from its construction, inferior in evaporative duty to the boilers fit for the lower pressure, and there is no more hopeful field of invention than that of 'heat making.' Marine boiler engineering, except as to improved material and workmanship, has been almost stationary for the last 20 years, the only advance being in the increased depth of furnace and length of flame chambers; and in the cylindrical boilers now making by the hundred, this first-named advance has been changed into a state of things worse than existed 10 years ago, as far as the furnace itself is concerned. In stationary boiler engineering, the influence of the various boiler inspection associations and the increased intelligence of the steam user, have greatly improved the manufacture of boilers, and thus facilitated the use of steam of a higher pressure. This has indirectly tended to economy; but the evaporative duty remains almost stationary, and averages at least 30 per cent. less than ought to be obtained."

MALT WITHOUT GERMINATION.—A new method is announced, by which a wort can be produced from barley, without germination. The process is as follows: The barley (fifty parts by measure) is put into a vessel, and steeped in thirty parts of sulphuric acid diluted to one per cent.; the vessel is then covered lightly, and placed in a water bath, kept at a steady temperature of 105° Fah. The vessel must be left in the water bath for seventy-two hours, and the contents frequently stirred to insure contact of the acid with all the barley. At the end of the process of steeping, the barley becomes soft and easily crushable, the silica in the bran being destroyed by the acid. It should be dried, and then has the appearance and smell of malt, and, we are assured, makes an excellent wort. The saving of time and trouble are altogether in favor of this process, which the inventor, Dr. Fleck, of Dresden University, has lately discovered, and on which he is now laboring with a view of rendering it practicable on a large scale.—*Sci. Am.*

THE SHERMAN PROCESS A FAILURE.—The *London Mining Journal* for April 1st, in a notice of the late session of the Iron and Steel Institute, remarks:—"The most careful and impartial trials have indisputably proved that Mr. Sherman's physicking produces no appreciable effect whatever on the iron, and that the process is thoroughly worthless. Neither sulphur nor phosphorus are removed by it, and the value of iodine, as an improver, may be altogether doubted, seeing that Mr. C. W. Siemens has not only tested the flux, but tried considerably increases dose also, the result being in every case identical—no appreciable difference."

ROLLING MILL AT LAGRANGE, PA.—The *Lagrange American* says the contract has been signed by P. C. Brinck, of Philadelphia, President of the United States Iron Company, by which that company agree with the city authorities of Lagrange, to erect and maintain in that city, a rolling mill of 25,000 tons capacity, annually, to cost not less than \$600,000, to employ not less than a million dollars capital, and to be in running order within two years from the date of contract. To obtain this, the city of Lagrange furnishes the ground and donates \$200,000 to the company.

SCOTT'S ROTARY ENGINES.—These consist of a pair of cylinders for each engine, in which a spindle revolves, such spindle carrying a piston made in the shape of a screw fan, being at such an angle that the second blade catches a fresh supply of steam before the first delivers to the exhaust. The reversing gear is made in the same way as for the slide or side valve of an ordinary fixed cylinder, the reverse action being secured by moving the handle to which the valve rods are secured so as to change the direction of the inlet or inject and the exhaust.—*Colliery Guardian*, March 17th.

THE LIFE OF RAILS.—The last annual report of the Lehigh Valley Railroad Co., says that the first set of iron rails laid upon the soles at Packerton, lasted 1 year and 23 days, and passed 2,263,675 tons. Steel rails laid May 28th, 1869, have passed 5,509,381 tons and show no perceptible wear. The company has contracted for 1,000 tons of steel rails, to be laid this year.

SCIENTIFIC PROGRESS.

REV. H. HIGHTON ANSWERED.—Prof. Morton notices, in the *Journal of the Franklin Institute*, the papers in the *Chemical News* by Rev. Mr. Highton upon the maximum of power in the galvanic battery. After remarking that the aforesaid gentleman maintains in fact the possibility of perpetual motion, or the development of power without a corresponding expenditure of force, Prof. M. says: "The theory of the daring author is briefly this: A battery current, passed through a given electro-magnet, will lift a given weight. If, now, we double the cross section of the wire of the said electro-magnet, and also its length, the resistance of the circuit remaining the same as before, the current developed by the battery and the consumption of zinc will remain as before, and yet the lifting power of the magnet will be doubled. Or, in place of increasing the size and length of wire, several similar electro-magnets may be so introduced in the circuit as to produce the same effect. Such a process continued indefinitely would, of course, enable us to develop any amount of magnetic force from a given battery. So far, well; but we have not yet come to the development of power, which implies motion. For this, it is evident that the electro-magnet must be charged and discharged, and here comes the compensating condition. To charge a double length of wire will take just twice the time, and therefore cause a double expenditure of zinc in the battery. Our author, in fact, notices this, but remarks that 'the electric current is so rapid that this difference of time is inappreciable within any practical limits.' Without doubt, to advocates of perpetual motion, but not to those who can see that two millionths of a second are as much twice one millionth as two centuries are twice one; or to the zinc, which, having to work twice as long at each effort, will be doubly exhausted when a given number of actions has been completed."

THE NEW ARCTIC EXPEDITION.—Capt. Hall expects to leave New York by the 15th of May, in the *Polaris*, a powerful Government tug-boat, "sharp as a knife, top-sail schooner rig," of 400 tons burden. Mr. John Morrison, an old whaler and shipping agent, is intrusted with the duty of selecting the twelve men who are to go before the mast, every one of whom will be able to navigate if required. The steward is the same who accompanied Capt. Hall in his five years' exploring expedition. Capt. Burdington of Connecticut will be sailing master. The *New York Times* of April 17th, says:—"A scientific corps will accompany the expedition, including the eminent chemist, Dr. Bessells, of Heidelberg, who arrived here a few days since from Germany, and who formed one of the scientific corps on board the North German expedition to the polar regions."

METACINNABARITE.—*Silliman's Journal* for May gives the result of an examination made by G. E. Moore of a specimen of black mercury-ore collected in Lake county, California, by Prof. Whitney. "It occurs as a coating on the sides of cracks and crevices in a peculiar quartzose gangue, and is accompanied by crystallized and massive iron and copper pyrites, and very minute cochineal-red crystals of cinabar." "Moore concludes that it is completely identical with the black amorphous mercuric sulphide of the laboratory, and proposes for it the name Metacinnabarite."

NATURAL SELECTION AS APPLIED TO MAN. Following is a paragraph from a review of Darwin's new book by P. H. Pye-Smith in *Nature* for April 6th:—"In the fourth chapter Mr. Darwin discusses the manner in which man was developed. It is shown that the broad facts on which the theory of Natural Selection rests apply to him. He is prolific enough to share in the struggle for existence. In him, as in all organic forms, there is a constant tendency to growth, which being checked and modified by external influences, proceeds in the direction of least resistance, and so produces the variations which are often ascribed to

an assumed inherent tendency. Among the various forms produced, those will survive which are best fitted for the surrounding conditions, and they will transmit their character to their descendants, still subject to the same liability to vary. Next the author argues that the mental endowments of man, including language, his social habits, his upright position, and perfect hands, are of direct advantage to him in the struggle with other animals and with his fellows. It has always appeared that the difficult point in the development of man by Natural Selection is at the period when he was more defenceless than an anthropoid ape and less intelligent than the lowest savage; but Mr. Darwin thinks that the transition may have been safely made in some large tropical island where there was abundance of forest and of fruit."

THE BEST FORM OF BUNSEN'S BATTERY.—S. P. Sharples details in *Silliman's Journal* for April, a series of experiments, the result of which was to fix upon the following as the best battery for ordinary use. It costs but little more than the Bunsen battery charged with nitric acid alone, is entirely free from fumes, and is perfectly constant for twelve hours. The electromotive force is the same as that of the Bunsen cell. The directions for preparing the liquids are as follows: "To prepare the exciting liquid, sulphuric acid of 1.84 sp. gr. is mixed with nine times its volume of water and allowed to stand until the precipitated lead has all settled. The clear acid is then decanted and is fit for use. This plan of preparing the acid has been in use in this laboratory for some years and gives very good results, local action being almost entirely prevented by the removal of the lead. To prepare the absorbing fluid, ordinary nitric acid is saturated with potassic bichromate; this should be done in a warm room, as it takes up much more when warm than when cold. The solution thus prepared is mixed with one-third of its volume of sulphuric acid and enough water added to re-dissolve the chromic acid precipitated. Two objects are gained by adding the sulphuric acid. The mixture is less expensive than if pure nitric acid is used and the internal resistance is decreased. If the internal and external cells are properly proportioned, this battery will run until the exciting fluid is exhausted, without giving off any fumes of nitrous acid."

VERTICAL CIRCULATION OF THE OCEAN WATER.—The report of Messrs. Carpenter and Jeffreys on "Deep Sea Researches" is concluded in *Nature* for April 6th. We give the final paragraph:—"In conclusion it may be added that the doctrine of a general vertical oceanic circulation is in remarkable accordance with the fact now placed beyond doubt by the concurrent evidence of a great number of observations, that whilst the density of oceanic water, which is lowest in the Polar area, progressively increases as we approach the tropics, it again shows a decided reduction in the intertropical area. It has been thought that an explanation of this fact is to be found in the large amount of rainfall and of inflow of fresh water from great rivers in the intertropical region; but it is to be remembered that the surface evaporation also is there the most excessive, so that some more satisfactory account of the fact seems requisite. Such an explanation is afforded by the doctrine here advocated; the polar water which flows towards the equator along the bottom of the ocean basins, being there pumped up and brought to the surface. And it is not a little confirmatory of the views advanced in this report that in a recent elaborate discussion of the facts relating to the comparative density of oceanic water on different parts of the earth's surface, the doctrine of a general vertical circulation is advocated as affording the only feasible rationale of them."

ALLOYS CHEMICAL MIXTURES.—It has been proposed in England to call alloys chemical mixtures. That they cannot be called mechanical mixtures, the fact that only the forces at the command of the chemist can separate them into their constituent proves. By no merely mechanical means could alcohol be separated from water or the zinc from brass; heat would, in both cases, play the principal part—and this force belongs to the domain of chemistry. As some metals will mix in any proportions, but still partially retain the character of chemical compounds, no objection can be made to the new definition. The term seems a fit one to rank between chemical compounds and mechanical mixtures.—*Eng. & Min. Journal*.

CORRESPONDENCE.

"Alkali."

EDITORS PRESS:—I wish some of your scientific correspondents would give us farmers the meaning of the word "alkali," as used in California and elsewhere on the Pacific coast. "Alkali" blinds our eyes, stuffs our noses, and chokes up our throats, as the railroad cars whirl us over the alkaline deserts that border on our State. It impregnates much of the water we drink, giving it the quality of going down "slick," and it appears as a white saline incrustation on some of the land we till. But although so universally visible, all the explanation one gets, on inquiry as to what "alkali" is, is that "it's alkali."

My smattering of chemistry teaches me that an alkali is something that combines with an acid to form a "salt;" potash, soda and ammonia being familiar examples.

By the way, this last is an article of priceless value to the farmer's manure heap, and unless tenderly cared for is apt to resolve itself into "airy nothingness;" it is distinguished as "the volatile alkali," that one understands; but any of your readers who can inform me what the "alkali" is that is so common throughout the country, what crops it benefits, and what it injures, will confer a benefit on farmers and the people generally.

We are told that beets grown on "alkali" soil are of less value for sugar-making; although the land in question produces a larger crop of such vegetables than of anything else.

When I speak to my Spanish neighbor as to sowing some other seed, he shakes his head and tells me the soil contains too much *salitre*, and cropping with beets is the way to get rid of the *salitre*. Surely, this is an instance where science should tell us what to grow. E. B.

The three oxides, potassa, soda and ammonia, (also lithia) are commonly called alkalies, or caustic alkalies; potassa was formerly called vegetable alkali; soda, mineral alkali; and ammonia, volatile alkali. Lithia is rare, and possesses properties similar to those of potassa. These are grouped together in a class, the alkalies, from their many characteristics in common,—from their solubility in water, their taste, their strong, caustic action on animal and vegetable substances, their union with oils and fats to form soap, their neutralizing and forming salts with acids, their changing reddened litmus to blue, etc., etc. The word alkali is from the Arabic word for the ashes of a plant used in the manufacture of glass and rich in soda.

The alkalies have a great affinity for carbonic acid which they absorb eagerly from the air, becoming converted into alkaline carbonates. The carbonates of potassa, of soda and of ammonia, are very soluble in water and have an alkaline taste and basic reaction.

A very common rock in our interior country is granite, especially soda granite or granite containing, as one of its principal constituents, soda felspar, a well-known mineral. Soda granite decomposes easily and the soda is converted into carbonate of soda, which is taken up by the waters. Such waters give rise to alkaline springs and alkaline lakes, which having, as in so many cases, no outlet, their waters become very concentrated by evaporation. Other carbonates are affected similarly to some extent. There was a geological time when such action was going on to a much greater extent than now, when alkaline springs and lakes were more abundant in our country.

These few brief remarks will perhaps suffice to show our correspondent how it is that we have so much "alkali soil" in our land, this "alkali" being, to a very great extent, carbonate of soda, mixed with other substances. In the *RURAL PRESS* of January 21st, and in the *SCIENTIFIC PRESS* of February 11th, the reader will find an article showing how alkali soils may be reclaimed.

The Cochineal of California—Its Production.

EDITORS PRESS:—In the *Country Gentleman* of March 30th, there is an article by a Californian upon the adaptability of our soil and climate to the growth of the *Cactus Opuntia*, for cochineal purposes. The writer has a correct idea about the wonderful resources of this State in regard to the small valuable products; and it is to be hoped some of our culturists will turn their attention to the cultivation of such products. There is no doubt that the healthful sections of Southern California afford the very best opportunity for the successful growth of cactus, olive, and other valuable productions of this class.

The manufacture of choice and expensive oils should also be considered. Other branches of industry should also be opened as an inducement to the manufacturing migration—that class which understands how to use our opulent resources. Our capitalists should take a more active interest in such matters. It is a subject of gratitude that Eastern papers are publishing reliable statements relative to our natural advantages, and the opportunities which California so humbly offers to the enterprising sons of labor.

The correspondent of the *Gentleman* truthfully says: "The *Cactus Opuntia* grows without irrigation—a great item to the California cultivator, and the principal expenditure is for labor, when the bugs are collected, every six months, while without any preparation they are ready for market." The *Cactus* grows spontaneously in Los Angeles and other southern counties, and requires but little attention. It is really a native of the climate of that portion of the State.

As a sample of the revenue which this branch of industry might bring to the Californian, we quote further from this correspondent, as follows: "A tree of full height, well trimmed, would give a yield of twenty pounds, more or less, annually. A good quality commands \$2.50 per pound."

People East and in Europe are constantly making inquiries relative to different branches of labor, etc., in California; and there can be no doubt that when the resources of our State are correctly understood by the emigrating masses, we shall offer homes and business to experts in these choice manufactures. It is not kind to California to publish glowing accounts of overestimated products and rapidly accumulating fortune. This has been a grievous error on the part of too many of our writers; but for the plain practical hints, such as we find from the pen of the correspondent of the *Gentleman*, all California is indebted. We have resources of wealth which have seldom been spoken of in public print; we have avenues of labor, as yet unknown to the people; and there are industries to be established which will require skill, labor and experience, as well as capital. We look for help in the final development of all this from the incoming immigration of all countries. We certainly feel a confidence in the *SCIENTIFIC* and the *RURAL PRESS* of California being able to do much to aid this result. E.

Protecting Trees from Grasshoppers.

EDITORS PRESS:—I wish to call the attention of your readers to a means of protecting trees from the ravages of jumping grasshoppers—those which fly it will, of course, not answer for—but in many parts of this State, Nevada, Colorado and Utah, they collect together in bands as the feed drive up, when they are from a half to over an inch long, and destroy every green thing that comes in their way, as they did last year in Yolo County, and the year before down here.

On their appearance here, my brother having a nice garden of 1½ acres, had it about all destroyed in two or three hours, on the first day of May, whilst he was on a visit to the village near by. On his return to his house he found two pear trees unharmed still, and went to work to devise some way to save them. After a variety of experiments, he at last put a piece of flat tin around the tree, cutting a hole in the center just large enough for the body of the tree, and a slit cut out from that so as to get it on; it was soon placed so as to present a flat surface extending out from the tree about four inches in every direction; still they would continue, now and then one, to succeed in crawling out on the under surface of the tin to the edge and getting over, until the idea of putting grease upon the tin came into his mind; after that was done, no grasshopper could

get to the tree, and to test the invention further he went to a neighbor's, who had a fine peach orchard, a part of which was not yet destroyed. When the greased tins were put around those trees, I saw them piled up under the same, destroying each other; but they could not get over the obstruction. I saw some jumping almost straight up under some of the lowest limbs; but they could reach none over two feet high. We have prepared to protect our garden, should they come again, by having a tight fence with a two-inch wide strip of greased tin at the top.

ISAAC B. RUMFORD.
Orange Grove, Tulare Co., April, 1871.

Bull Run District, Nevada.

EDS. PRESS.—I will again send you a few lines concerning this district. The snow is fast disappearing on the mountains and now remains only in the valleys. Several companies are commencing operations for the coming summer, among which may be named the Norwich, the Porter, the New York and others. As yet we have no cause to complain with regard to the extent of our mines, all those which have been prospected to any depth showing decisively that they hold out well in width and also improve in quality with the depth.

It would be difficult for any one to say just how much ore will be shipped from here this summer, yet there can be no doubt but that it will exceed thousands of tons. As for ore to be milled here, the following is not an over-estimate of the amount which might easily be got out, all of it to exceed \$100 per ton: Nevada No. 1, 10 tons; Nevada, No. 2, 25 tons; Nevada, No. 3, 5 tons; Porter, 5 tons; Johnson, 10 tons; Lady Don, 10 tons; Norwich, 15 tons; Blue Jacket, 20 tons; Ontario, 10 tons; J. F. Chellis's various mines, 40 tons; Pennsylvania Hill mines, 50 tons; other mines of the district, 30 tons. Grand Total, 230 tons daily; and out of this, 50 tons may be sorted which will yield from \$200 to \$400 per ton.

I have good reason to believe that, were there sufficient machinery and mills here to work the ores as they are taken out of the mines, a greater quantity than the above would be produced daily. But as it is, the majority of the miners and mine-owners here are so situated as not to have sufficient means for carrying on mining on a very extensive scale without frequent returns, which, up to the present time, it has been difficult to get.

BULL RUN MINER.

Bull Run, April 5, 1871.

The Public Lands.

The question of land grants is being agitated in a very lively manner. The matter of grants to railroad corporations is made prominent, and is even becoming a political question. That it should enter into politics, we are sorry to see, for, important as it is, when once made a partisan affair, it will be treated as one's interests dictate, and not with the spirit of fairness which it ought to have.

Senator Stewart, of Nevada, has sent us a copy of his speech on the subject, delivered before the U. S. Senate on the 3d ult. It is certainly a most able argument, and advocates the distribution of land in small quantities. It likewise advocates the railroad grant system with ability. With this we also agree—to a certain extent. But to give the railroads unlimited amounts, is contrary to our ideas. Give them enough to aid them and to secure the construction of roads, but be judicious and careful in such gifts. We append a few extracts from the senator's speech, as follows:

I believe I have alluded in a general way to all legislation under which any considerable portion of the public domain has been alienated. Thus it will be seen that the sales of the public lands have been to pre-emptors, purchasers at auction, and purchasers at private entry; and that the donations of public lands have been to

States for purposes of education, to States and corporations in aid of internal improvements, and to individuals for military service, for homesteads, and to discharge supposed obligations to Indians.

Land Sales and Grants.

A recapitulation shows the following disposition of the public domain thus far appropriated for all purposes by the General Government. In this estimate no allowance has been made for mineral lands or desert county.

	Acres.
Sales for cash to actual settlers.....	80,294,000
Sales for cash to all other persons.....	80,294,000
Total cash sales.....	160,588,000
Donations to individuals:	
For military services and not assigned.....	8,000,000
For military services, and assigned to others.....	70,000,000
To individuals, being half-breed scrip, and assigned to others unlawfully.....	715,652
To homestead settlers.....	15,900,730
To States:	
Swamp and overflowed lands.....	60,000,000
Agricultural college grants.....	9,510,000
Sixteenth and thirty-sixth sections for schools.....	9,066,802
To aid internal improvements, but in some cases diverted to school purposes.....	13,669,671
To railroads:	
In States.....	50,000,000
Transcontinental and branches.....	30,000,000

Total donations..... 330,8 2,855
Aggregate sales and donations..... 491,450,855

Thus it will be seen that of the 491,450,855 acres of lands appropriated by the Government, actual settlers have received by purchase under the pre-emption laws, and by gift under the homestead act, 96,194,730 acres, or less than one acre in five of the whole amount.

If we omit the railroad grants above stated, namely, 89,000,000 acres, we find that the remainder of the land disposed of, namely, 306,256,125 acres, have gone into the hands of States and individuals, the latter having no other interest than to obtain the largest price, and the former prone, as we all know, to almost immediately surrender their grants to the speculators and adventurers who have been able to control the local legislation.

Monopolists vs. Railroads.

The senator speaks of how the people who should be benefited, have been injured for the benefit of monopolists, and alludes to fraudulent entries and sales. He shows the beneficial results of the railroad grant system. This public land must first be reached by steam communication before they will be settled up; the only way of furnishing the communication is by building railroads which must aid. Settlers prefer half the quantity of land when near railroads, which, being obliged to sell their lands for money to build the roads and pay interest on their bonds; being compelled to take the land as it comes, the good with the bad, without selecting it; being necessitated to have settlers along their lines to furnish business; are thus, in fact, great colonization societies.

The amount of public lands unsold and unappropriated on June 30, 1870, exclusive of Alaska, was 1,018,202,609 acres, from which should be deducted the grant to the Texas Pacific road, made at the last session, 21,000,000 acres. Balance of public domain now unappropriated, 997,202,609 acres. It would not be safe to estimate the portion of this land fit for cultivation at more than one-third of the whole. This would leave of public lands suitable for homes yet unsold and unappropriated 332,400,869 acres, the best portions of which are reserved for Indians. The other two-thirds are either grazing or mining lands or desert.

ACCLIMATIZING SOCIETY.—The Ornithological Piscatorial Acclimatizing Society, at its meeting last week decided to incorporate under the name of the Acclimatizing Society with a capital stock of \$50,000 divided into \$5,000 shares. The trustees are Dr. W. A. Newell, M. M. Estee, S. B. Clark, John K. Orr, D. J. Mills, J. B. Green, E. H. Keill, C. Stiver, P. D. Horton, A. Cadlam, J. Williamson and J. C. Green. Mr. Estee said the incorporation of the Society would harmonize with the law, and give it a standing which it should have to fill its mission. It was the view of the Society also to get a law passed by the next Legislature giving the Society control of the public streams and ponds in the State, where it would not be in conflict with the rights of private citizens. By incorporating, gentlemen in the rural districts could be got to take stock; men of leisure and means who can assist the Society and be assisted in propagating fish and game on the coast.

OUTRAGES IN THE SOUTHERN STATES.—Senator Cole sends us the report of the Senate Committee appointed to investigate the alleged outrages in the Southern States.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SHUT DOWN.—*Chronicle*, April 22d: The Globe has stopped work. We cannot reconcile this proceeding with the statements in regard to the fabulous wealth of this mine. Is this going to be another specimen of sagacity and enterprise—putting up a mill before you get a mine?

SCHENECTADY.—By to-day's stage, M. Schwerin, Supt., returns to New York, to report to his company and make arrangements for erecting reduction works.

The *Miner* of same date says: Another strike was made in the Schenectady this week. The main lower tunnel has been pushed ahead from the point where the drift to connect the upper and lower works by winze leaves it, and ore of better character than ever before found in the mine penetrated some distance.

AMADOR COUNTY.

THE KENNEDY.—*Dispatch*, April 29th: The whistle of the mill, last Monday, conveyed the welcome intelligence that that institution was at last ready to commence crushing quartz.

The *Ledger* of 29th says the mill has been put in complete order and everything works to a charm. The engine is in charge of two experienced engineers.

GOING TO WORK.—We learn that a contract has been entered into to sink the Casco mine two hundred feet deeper, and work will at once be commenced.

CALAVERAS COUNTY.

RAILROAD FLAT.—*Chronicle*, April 29th: Sanderson & Co. are hauling rock to the Randolph mill. Fiffeld & Co. also. Business is improving. From present appearances the miners are taking out more rock than at any former time. It is rumored that parties contemplate starting the Petticoat mill, on custom rock.

WHAT CHEER.—The erection of machinery upon this mine will be commenced next week. The timber is being hauled.

SHEEP'S RANCH QUARTZ.—Mr. W. I. Armstrong, proprietor of the principal mill, has just finished crushing fifty tons of rock from the mine of Wallace & Armstrong, which yielded \$3,000—an average of \$60 per ton. The quartz was unassorted. The entire lead was taken out and everything put through the battery. . . . Thirteen tons of rock from the "Lodi," worked in Armstrong's mill, netted \$150 per ton. . . . The Jaquith mine, on Indian Creek, has been sold to a company of San Francisco capitalists for \$40,000. One ton of rock from this lead worked in Bovee's mill at Angels, yielded \$51. The parties who purchased have made arrangements for the erection of a twenty-stamp mill. Three hundred tons of rock are in readiness for crushing. . . . Samuel Woods has worked forty tons of ore from his mine which paid \$82 per ton. Mr. Woods has plenty more of the same in sight. . . . W. Bean & Co's mill is kept in constant operation on first-class rock, the average yield per ton being \$40. G. Rodeseino, proprietor of the "Rose Hill" mine near El Dorado, has a shaft sunk eighty feet, at which point the lead shows four to six feet in width. The rock is very rich.

ELDORADO COUNTY.

POCAHONTAS.—Cor. of *Placerville Democrat*, April 29th: This mine for the last year has not failed in declaring a handsome monthly dividend. The new shaft is 250 feet deep, shielded on top by a building that shades a 20-horse power engine, with a hoiler of corresponding capacity. Considerable improvements are constantly taking place—miners' cabins and family residences dot the surface in all directions.

N. Y. & EL DORADO.—This company have an excellent 10-stamp mill, with boiler and engine sufficient to run 30 more. A gradually rising knoll, some hundred yards distant from the mill, is topped by the finest hoisting rig in the county. The shaft is 240 feet below the surface, well timbered, five hy eight in the clear, with a ledge twenty inches in thickness. Their last run paid \$10 per ton, but the rock is improving rapidly.

NASHVILLE.—Here is the Havilah, a No. one 40-stamp mill, that pulverizes 250 tons weekly, employing forty to a hundred men. The ledge averages five feet thick. The Montezuma, too, is located here; but for reasons best known to the company, they have permitted their 20 stamps and good mine to remain idle for the last two years.

INYO COUNTY.

ECLIPSE MILL.—*Independent*, April 22d: Last Tuesday the air-stamp battery was started up for the first time, and a considerable lot of rock run through. Its effectiveness was demonstrated to the complete satisfaction of all present. The stamps operate at the speed of 150 drops per minute, dropping 19 inches, and on the trial reduced 42 tons per day. The mill was started up yesterday for a continuous run.

CERRO GORNO.—Cor. of same: The Industry tunnel, near the Lucas mine, is in a distance of 160 feet, the company commencing the 18th of February. The present indications are favorable of striking ore soon. The Oceola tunnel has struck the ledge at last. The Wittekind is progressing favorably, expecting to reach the mine within two or three weeks. The Friendship is doing well. The Belmont has maintained her reputation. George Mendez & Co. have struck a large deposit of ore in the drift of the San Felipe tunnel, 50 feet from the tunnel, and 30 feet below the level of the same.

MARIPOSA COUNTY.

The *Gazette* of April 28th says that the work of cleaning out and retimbering the main shaft at the Washington mine, which caved in several weeks since, is progressing. The shaft is opened to a depth of nearly 300 feet, and if no accident happens the company expect to have the mine in working order by the middle of May.

MONO COUNTY.

DUNDERBERG.—*Carson Register*, April 23d: A dispatch from Dr. Munckton states that he had arrived at Washington City, made arrangements for working the Dunderberg mine on an extensive scale, and was to leave for New York yesterday.

NEVADA COUNTY.

GRANITEVILLE.—Cor. of *Gazette*, April 27th: Morris, Mitchell & Co., at the South Fork, have free water almost the entire year, have their claims fitted up in first-rate shape, and I am informed that they pay on the average about \$10 per day to the man. It is valuable property, as they have ground enough, at the present rate of working, to last 20 years. Baldwin & Co. at the head of little Canyon creek, commenced running water last week. They have rich ground. The great difficulty is a scarcity of water. They work about five months in a year, and make ten to fifteen dollars per day to the man. Robertson's diggings are in what is known as "God's country." He has commenced piping, and his ground prospects well. Moore & Staples located ground on Portuguese flat, half a mile from town, and the ground is paying handsomely. Mr. Hibbert and partner are working ground at Rocky Glen. On Madman's flat, Hughes & Co. claims, which in early days paid richly, are now drifting, and making good wages. O'Garra's claims, also on this flat, are yielding good returns.

WEBSTER MINE.—*Grass Valley Union*, May 2d: On Saturday the men took out gaavel for ten hours. This was washed and yielded gold 24½ ounces, worth \$18 an ounce, making in all \$441. The clean up yesterday was about \$2,000. Yesterday morning two ounces of gold was taken from one pan.

PLACER COUNTY.

ST. PATRICK MINE.—*Herald*, April 29th: A box of quartz showing free gold and sulphurets in abundance, taken from different levels in the St. Patrick shaft from 125 to 200 feet deep, was brought to town on Thursday. It is a marvel of richness. It weighed 180 pounds and was estimated to contain fully \$1,000 in free gold. The Co. now has an east drift 80 feet from the 200 foot level, and the ledge on this drift shows from four to five feet thick of this rich ore. The mine we believe has not a parallel on this coast for the time it has been opened and the work done, in richness, if we except the Greene ledge.

DILLON MINE.—We referred to the rich crushing of over \$70 per ton last week. Since then the owners, Dillon, Cowan and Himes, have purchased the hoisting works formerly used on the St. Patrick, and a Cornish pump, all to be run by water power. The shaft thirty-five feet deep, is now full of water to within two feet of the top, but the boys think they will have their works in place, and the shaft dry in three weeks. The ledge at the bottom of the shaft is three feet thick and well defined.

Chas. Gardiner plowed up a five dollar specimen the other day on the old Turner place.

PLUMAS COUNTY.

ITEMS.—*Quincy National*, April 22d: The Eureka Co. has started 16 stamps, and is making an average clean-up of \$1,000 per day. The Co. has nearly one hundred men employed, and the mine is looking splendidly. . . . Morris Smith & Bro., of Badger Hill,

made a clean-up of a few sluices in one of their side flumes, one day last week, and took out \$800. . . . North American Co., at Whisky Diggings' lately commenced washing up, and estimate the season's work at \$50,000. . . . The miners are working long hours, so as not to lose the benefit of the water season, which in some localities will be short, and they do not take time to clean up. . . . The frost is over at Mill Creek and the miners are again at work. . . . As the creek heads in the high mountains, the prospect for a long run of water this season is good.

SAN BERNARDINO COUNTY.

RICH ORE.—*Guardian*, April 29th: John McFarland brought in from the Clarke District, this week, three or four tons of immensely rich silver ore which will leave on the next steamer for San Francisco. This ore assays per ton, from six to seventeen thousand dollars.

SAN DIEGO COUNTY.

BULLION.—*Union*, April 27th: Pauly & Sons shipped per Wm. Taber yesterday about \$1,000, gold bullion, from the Julian mines.

SIERRA COUNTY.

MINING SALE.—*Democrat*, April 27th: Messrs. Wehe, Barton & Hibbert have sold the Telegraph Ledge to Robinson & Co., San Francisco capitalists.

ITEMS.—*Messenger*, April 29th: The Keystone Co. cleaned up on Tuesday last after a run of forty days with twelve stamps, 95 pounds and 8 ounces of gold, worth \$19 per ounce—nearly \$22,000. We are informed that the Keystone intends to build a new mill this summer. . . . The owners of the mines on Craycroft hill, commenced piping on Tuesday. . . . Adelaide ledge is being prospected with flattering results. . . . The rock from Homestake ledge is very rich in free gold. A shaft is down 42 feet, and it has been prospected for 900 feet. A contract has been let to run 150 feet of tunnel.

PORT WINE.—Cor. of same: The Union Co., have come to the second pitch, and it is paying better than ever. . . . The Monte Cristo is doing first-rate. I saw a specimen yesterday, which weighed 22 ounces, and was told there was at least six ounces of gold in it. . . . The Eagle boys have washed up, with fair results. . . . The Pioneer, at Grass Flat, is driving its tunnel ahead. Pay dirt has been struck. . . . The Queen boys look as though they had found some of this metal they have worked for. . . . The boys at French tunnel are doing a fair thing.

SISKIYOU COUNTY.

PROSPECTING.—*Yreka Union*, April 26th: We learn from Hot Spring Valley, that there are a great number of parties through that country prospecting. One party got prospects of free gold in quartz, everywhere on a range north from the Ehlers & Co's claim.

TRINITY COUNTY.

LEWISTON.—*Journal*, April 29th: Mr. O. Phillips has struck it the biggest kind. The hill back of Lewiston has been worked for many years. On one portion, as was supposed, it had been sluiced away down to the bed-rock at an early day. Upon trial, however, it appears that the supposed bed-rock was simply hard sand, twelve inches thick. Underneath this layer Mr. Phillips has found six to eight feet of gravel, yielding from five cents in the hank to \$1.50 on the bed-rock to the pan. From holes sunk in different places through the false bed-rock, Mr. Phillips has tested two acres of the same soil.

At Junction City, the miners are all at work, and gold dust in coming is at a lively rate.

Nevada.

ELY DISTRICT.

BULLION.—*Record*, April 23d: Wells, Fargo & Co., shipped yesterday by way of Salt Lake, 11 bars, valued at \$12,554.37. Same of the 27th says: W. F. & Co. shipped yesterday by way of Salt Lake, 5 bars of bullion for the M. V. Co., valued at \$6,600.88; for Barnum W. Field, bullion valued \$5,167.61.

MEADOW VALLEY CO.—Wagons can now be loaded with the greatest facility at nearly all the mines of the company; all are accessible to teams by roads of easy grade. Three new hoilers 56 inches in diameter, 16 feet long, of 42 3/4 inch tubes each, have just arrived and two are being placed in position. The other is held in reserve against emergency. The Co. are taking down their old smelting furnace, erected two years since. The brick are to be used in the mill at the Valley.

The Chicago mill will start up on Friday—having been leased by Hanchet and others. The erection of a Stetefeldt furnace, will be commenced immediately.

EUREKA DISTRICT.

EUREKA CONSOLIDATED CO.—*Sentinel*, April 29th: The Co.'s mines look as well as ever. There are two 10 horse teams hauling ore from the mines, on Ruby Hill, two miles from the furnaces. They make each two trips daily, hauling at each load 28,000 pounds of ore per team, making a total of 56 tons. After the first of May, when the new furnaces will be running, two more teams will be put on the road, and then there will be hauled daily not less than 112 tons of ore.

The Wellington mine on Adam's Hill, north of the Phoenix Co.'s Lexington and Empire, is opening up handsomely. This shaft, though but eight feet deep, and eight feet square, shows ore on every side.

The Nourmahal mine on Adams Hill, next east from the General Lee promises well, assaying as high as \$282.

ROSLIN CO.—For months this furnace has been turning out hullion on an average of four tons per day, which is worth, in silver and gold, \$350 per ton. There is now at the furnace sixty tons of this hullion awaiting shipment to Selby & Co. at San Francisco. The mines from which the ore has been obtained, are the Elise, Hamburg, Helen Mortimer, Diligence, and Sterling. Assays have been made from the Elise of \$10,270 per ton, and the average of hundreds of tons has been \$270. This average width of the ore is eight feet, and this at a depth of 102 feet. A tunnel is now in 110 feet on the Sterling and Diligence. This company also has a 200-foot tunnel in the Helen Mortimer hill, and are now running on a ledge three feet wide. Every mine of the Co. is producing good ore, and will yield more than half a dozen such furnaces can smelt.

E. MERALDA.

WALKER RIVER.—The *Enterprise* of April 27th says that Messrs. Kennedy and Hurd have discovered an immense ledge 30 miles west of Walker Lake and 65 miles from Virginia City. The ledge is 40 feet wide, and has been traced 3,000 feet. The proprietors sunk a 20-foot shaft, and run a cross-cut, the ore from which assays from \$50 to \$1,900 per ton. They have named lead the "Gruthi."

HUMBOLDT.

ECLIPSE MINE.—*Silver State*, April 29th: The tunnel is now in 120 feet, through frequent spurs of quartz. The main ledges is near at hand. The cutting of this vein is anxiously looked for.

BULLION SHIPMENT.—The amount of hullion shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$6,399.35.

BATTLE MOUNTAIN.—Cor. of *Register*, April 29th: The Nevada Butte mill is to be finished by June 15th. The Little Giant mine has been sold to Mr. Gashwiler, of San Francisco. The Trenton has been sold to Judge Goodwin, of Eureka, for \$75,000. The ore from the White mine is as rich as ever. Not much taken out this week on account of water. It is rumored that machinery is to be placed on the Buena Vista. The Black Hawk tunnel is in 45 feet, and the shaft down 15 feet. The Brooklyn will ship 30 tons of rich galena soon. Wire silver has been struck in the Daisy.

ITEMS.—Ed. Rinkel and Ham Sherer, prospecting in Central district, discovered a ledge two feet thick, which yields \$100 to the ton in gold. . . . Pride of the Mountain will ship ore to Rye Patch mill soon. . . . L. D. Webb, of Gold Run district, shipped last week to the Rye Patch mill 18 tons of ore from the Second South Extension of the Golconda mine, which yielded \$75 per ton.

REESE RIVER.

SILVER PEAK.—*Reveille*, April 24th: The Lodi is turning out rich. Two cuts, one 60 and the other 40 feet, disclosed a continuous vein averaging four feet in thickness which will mill not less than \$150 per ton in gold and silver.

WASHOE.

GOUTIN AND CURRY.—*Enterprise*, April 30th:—The work of retimbering the upper portion of the main shaft is nearly completed. The bottom of the shaft is now in metal-bearing quartzose material, indicative, in the opinion of experts, of the immediate proximity of a heavy body of valuable ore.

SAVAGE.—The average daily quantity of ore mined is 110 tons.

HALE AND NORCROSS.—The regular daily quantity of ore is extracted, the principal yield being from the eighth or deepest level.

OPHIR.—The cross cut from the "uprise" in the south mine has passed through the vein matter to the west clay. A drift is being run northward in search of ore.

CONSOLIDATED VIRGINIA.—The north drift from the main west drift was in yesterday 278 feet and is now in very hard rock containing occasional spots of ore.

CHOLLAR-POTOSI.—During the past week there have been extracted 1,800 tons of ore, and 1,740 tons has been sent to the mills. The average assay per ton has been \$8.20. The amount of bullion shipped for the week was \$80,000.

YELLOW JACKET.—The mine is yielding 180 tons of ore per day, from between the 800 and 1,000-foot levels. An incline is about being commenced from the bottom of the main shaft, at the 1,100 foot level.

CROWN POINT.—The immense body of paying ore improves in every direction. They are now taking out 160 tons of ore per day on the average. The ore, unassorted, averages \$35 per ton.

OVERMAN.—This Co. are taking out forty tons of ore per day through the tunnel connected with the 226-foot level. At the hoisting works, the pump machinery only is running.

SIERRA NEVADA.—The mine and mill are both lying idle owing to legal troubles with the Kenosha Co. Some ore is being taken out of the Sacramento and Meredith mine by contract.

LADY BRYAN.—A force of forty men are at work. Workmen are quarrying ore from the croppings, which it is believed will pay well. The pumping machinery was started yesterday and works well.

DANEY.—Good progress with the drift west for the lead. They will shortly begin taking out low-grade ore from near the surface in the old works.

SUTRO TUNNEL.—The tunnel was yesterday in 1,929 feet. The working force will be increased Monday.

OLD MINES.—Some of the 1860 claims among the hills east of Carson City are being relocated. A 12-foot lead, yielding \$35 per ton, near the "Hatfield" mine, has been found. It was abandoned when it cost nearly that figure to crush rock. Now it will pay.

TALINO'S MILL.—Parke & Bowie's mill, in Six-mile Cañon, contains six iron pans 7½ ft. in diameter and six ft. deep, capable of working six tons of tailings at a charge, and six charges in 24 hours, and six wooden settlers, 10 feet in diameter and 7 feet deep. The mill works 100 to 120 tons per day.

WHITE PINE.

REVIEW.—*News*, April 29th: All the mines are working an increased force. The body of ore in the Original Hidden Treasure, proved to be very extensive. The tramway wire was started on Wednesday, and ran well about 100 feet. It is a success; all that is lacking is a little more power, which will probably be supplied during the coming week. Several important sales have been made during the week. The bullion shipments have been 15 bars, valued at \$16,080.53.

ITEMS.—Lower tunnel in O. H. Treasure passes for the entire 300 feet through fair milling ore. Silver Wave is taking out 20 tons daily, 15 of which is milled, and averages \$100 per ton. Shaft in Ward Beecher Consolidated is down 70 feet. Good ore found in the Ieeberg. Three men taking out 75 pounds daily of Mazepa ore, worth \$1,000 per ton. The rest of the one ton raised will mill \$60 to \$150. Of the basement mines, the Caroline uses an astrara, and turns out a good-sized brick weekly. Lucky Boy raises its regular ton of good ore daily. In C. T. Fay, the high grade ore is still being followed with no signs of giving out. The vein increases in size. Bismuth's tunnel is in 80 feet, and struck good ore. Since the sale of the Page & Corwin mine, enough ore has been taken out to repay the purchase money, and plenty left in sight. The 10-stamp mill at Tem Pute turns out bullion of high fineness. Stanford mill was to start May 1st. The Monte Cristo 20-stamp mill will be completed within the specified time. Metropolitan runs steadily.

Arizona.

BRANSHAW.—Prescott *Miner*, April 22d: Moreland & Co., owners of discovery location on the Tiger, had their four-foot shaft down 17 feet, and had struck water. Rock richer than ever. Rich pay streak wider than shaft. Owners in ecstasies. The same Co. were running cut, and had waded through 18 feet of good paying ore. Riggs & Co., south of discovery, on Tiger, although they had worked through and across 20 feet of quartz, had not cut through the entire ledge. Rock as rich as they cared to have it. The men at work on Bean & Co.'s location, south Tiger, were surrounded by rich rock, and felt happy. Their cut was in on the ledge 20 feet; down upon it 15 feet, and the ledge was fully 12 feet thick.

HASSAYAMPA.—The rich streak on the Davis lode, that will pay \$100 per ton, is fully 4½ feet thick. The remainder will pay for working. Mill ordered from San Francisco.

Colorado.

GEORGETOWN.—*Miner*, April 27th: The heading of the Burleigh tunnel is 33 feet beyond the lode cut. The mills are fully supplied with ore. The Dunedin is producing fine specimens of native silver. Work has been commenced on the Bismark lode. Mr. Bemont, of the Washington Mill, shipped last week five tons of ore from the Stevens mine. The ore was crushed, sampled and assayed, and assays showed 175 ozs. of silver and 60 per cent. (1,200 lbs.) per ton of lead. Palmer & Nichols of the German Reduction Works, have shipped since our last issue 3,378 ozs. value \$3,702, coin. The Stewart Co. have shipped \$3,233 bullion. They purchased one ton of ore from the Munsell lode for which they gave \$521 currency, and a lot from the Anetula lode, which gave \$786 coin, to the ton by assay. We saw last week some Caribou ore worth \$2,000 per ton. Mr. Geo. Chase will commence immediately to develop those claims of the Phoenix Co. which are situated in Trail Run. Mr. M. Thatcher is driving work on the Napoleon lode, Columbian mountain. The rock struck assays \$1,461.20 per ton. We have it from good authority that the gold yield for this county was underestimated in the bullion report for 1870. It should be \$65,000 instead of \$30,000.

ITEMS.—*Herald*, April 22d: Two stamp mills in Black Hawk that have lain idle all winter, started up last week on custom ores. These are the Consolidated Gregory, 25 stamps, and the Woodbury & Norton, 23 stamps. Cash & Rockwell's chlorination establishment has more than it can do in the way of treating the higher grade ores. These works are beside the Continental Co.'s mill, in Chase gulch, one mile above Black Hawk. Martin & Peters are running pans on ores and tailings at the Dickinson mill with great success. They have lately doubled their pan capacity, but still have more work offered them than they can attend to.

CARIBOU.—Same of 8th April says that there is three feet of solid ore at the bottom of the shaft. A single piece worth \$300 in native silver was taken out.

Idaho.

ITEMS.—*Avalanche*, April 22d: Owners of placer mines are waiting for water, and in a few more warm days mining will be in full blast. The yield of gold dust will be greater this season than for years. Parties are getting ready to work the Golden Chariot dump, and Frazer & Co. have everything in readiness for commencing operations on the dump of the Ida Elmore. The Bruce Bros. are making a string of sluice boxes, and, as soon as the water starts, will resume work on the Oro Fino dump. Mr. Black will soon start up his mill on Pioneer ore. C. S. Miller is about starting the Rising Star mill. Wells, Fargo & Co. shipped from here during the past week 8 bars of bullion, valued at \$21,730.06.

SNAKE RIVER.—*Democrat*, April 26th: At the bank of Greathouse Bros. on Monday, we saw 70 ounces of gold dust just brought in from the Snake River mines and worth \$17 per ounce.

SOUTH BOISE.—The London (England) *Standard* gives the particulars of the incorporation of the "Atlantic Silver Mining Company (Limited)" to purchase and work the Atlanta and other mines. The capital stock is £250,000. The figuring estimates a clear profit, the first year, of 54 per cent. on the money invested.

Montana.

MINING.—*New North West*, April 21st: Nearly all the camps would have been working this week, had not the cold snap checked up water. Blackfoot, Bear, Elk, Henderson, Gold Creek, Pilgrim Bar, Silver Bow and Butte will be actively mined next week, if the weather holds fair. There is only one opinion—that 1871 will be the most productive mining season ever seen in Deer Lodge.

ITEMS.—*Independent*, April 22d:—Claim No. 40, upper district, Quartz Gulch, gave \$150. to a set of timbers. A gentleman from Argenta says Stapleton is running his furnace with profit. The company that own the Rattlesnake Ditch are working on the bars and small gulches and doing well. In Elk Creek, Messrs. McGovern, Hyland & Co., Dugan & Co., Wm. Kenedy & Co., and Jones & Co., began operations last Monday, and Stone & Co., intend to start up next Monday. There is an abundance of snow on the mountains. Joel Catching turned three pipes on his gravel bank on Pilgrim Bar to-day. Several other companies will commence panning during the week. John Brown, of Pioneer City, has sold a one-third interest in the Brown & Kelley claim on Gold Hill, to Col. Thornton for \$3,000.

Mining Stock Market.

SAN FRANCISCO, Thursday Eve., May 4.

The stock market has been active but irregular during the past week. Crown Point and Belcher have both reached their highest point for years. Amador has been quoted at \$345 to \$360, quite a fall from the preceding quotations.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock:

Alpha	Apr 29	Highest	Lowest	May 4	Adv.	Dec.
Alpha	10	10	10	10	—	—
Belcher	15	63	79	4	—	—
Amador	15	185	175	79	3	—
Crown Point	139	185	175	79	3	—
Eureka Cons.	10	11	10	1	—	—
Golden Chariot	39	46	39	43	4	—
Gold and Curry	53	53	53	22	3	—
Hale and Norcross	60	69	56	57	1	—
Ida Elmore	14	16	13	15	1	—
Imperial	42	55	42	52	10	—
Kentuck	72	72	68	69	—	—
Meadow Valley	16	16	15	14	—	—
Overman	8	9	8	7	—	—
Oric, Mid. Treas.	9	9	7	8	—	—
Overman	4	4	4	4	—	—
Savage	44	47	40	46	2	—
Sierra Nevada	17	18	16	16	—	—
Yellow Jacket	68	70	66	70	2	—

Latest Prices.

[S. F. Bid and Exchange Board.]

BID.	ASKED.	BID.	ASKED.
Alpha Cons.	10	Ida Elmore	15
Amador	185	Kentuck	69
Belcher	79	Meadow Valley	13
Chollar-Potosi	19	Overman	3
Crown Point	185	Oric, Mid. Treas.	8
Eureka Cons.	10	Savage	46
Eureka	50	Sierra Nevada	16
Golden Chariot	46	Yellow Jacket	70
Gold and Curry	53		
Hale & Norcross	57		

San Francisco Retail Market Rates.

MISCELLANEOUS.		FRIDAY, May 5, 1871	
Butter, Cal. fr. lb	35 @ 40	Wheat, 22x36	13½ @ 14
Pickled, Cal. lb	30 @ 35	Potato G's Bacs.	23 @ 25
do Oregon, lb	25 @ 30	Second-hand do	16 @ 18
do, lb	25 @ 30	Sheep skins, w. on	50 @ 75
Eggs, per doz.	30 @ 35	Sheepskins, plain	12½ @ 25
Lard, lb	18 @ 25	Goatskins each	25 @ 55
Sugar, cr. lb	10 @ 13	Do, dried, lb	15 @ 20
Brown, do lb	10 @ 13	Peaches, dried, lb	15 @ 30
Beet, do lb	10 @ 13	Dry Cal. Hides	17½ @ 18
Sugar, Map. lb	30 @ 35	Do, Salted	15 @ 18
Wool Sacks, new	40 @ 50	Dry Mex. Hides	15 @ 20
Second-hand do	67½ @ 70	Salts	9 @

PRODUCE, ETC.		FRIDAY, May 5, 1871	
Codfish, dry, lb	6 @ 10	Barley, cwt.	2 @ 25
Flour, ex. 50 lb	5 @ 50	Beans, cwt.	3 @ 50
Superfine, do 50	5 @ 50	Potatoes, cwt.	15 @ 25
Corn Meal, 100 lb	64 @ 60	Do, do	15 @ 20
Wheat, 100 lbs	72 @ 70	Live Oak Wood	10 @ 1200
Oats, 100 lbs	20 @ 20		

FRUITS, VEGETABLES, ETC.		FRIDAY, May 5, 1871	
Pine Apples, 4	50 @ 90	Garlics	5 @ 8
Bananas, lb	3 @ 00 @ 50	Green Peas	8 @ 6
Cal. Walnuts, lb	20 @ 25	Green Corn, doz.	15 @ 20
Cranberries, lb	75 @ 100	Sugar Peas, lb	15 @ 20
do, lb	75 @ 100	Lettuce, doz.	12 @ 25
Apples, No. 1	4 @ 12½	Horseradish, lb	25 @ 20
do, No. 2	4 @ 12½	Okra, dried, lb	50 @ 50
Oranges, doz.	50 @ 75	Okra, green, lb	3 @ 4
Lemons, doz.	75 @ 100	Okra, green, lb	3 @ 4
Rais, doz.	20 @ 25	Parasol, bunches	25 @ 25
Asparagus, lb	12 @ 15	Parsley	25 @ 25
Artichokes, doz.	50 @ 75	Pickles, gal.	50 @ 75
Brussels sprouts	20 @ 25	Radishes, lb	25 @ 25
Beets, doz.	20 @ 25	Red, do	25 @ 25
Potatoes, sweet	2 @ 3	Summer Squash	5 @ 5
Potatoes, new	4 @ 5	Marrowfat, do	4 @ 6
Tomatoes, lb	20 @ 25	Hubbard, do	12 @ 15
Broccoli, doz.	10 @ 20	String Beans, lb	15 @ 20
Cauliflower, doz.	30 @ 50	Summer Squash	3 @ 30
Cabbage, doz.	30 @ 50	Do Lima, sh.	25 @ 30
Carrots, doz.	10 @ 25	Spinage, lb	25 @ 50
Celery, doz.	15 @ 20	Do, do	25 @ 50
Cress, doz	20 @ 25	Turnips, doz.	25 @ 25
Dried Herbs, lb	25 @ 50	Asparagus	10 @ 15
Egg Plant	10 @ 15		

POULTRY, GAME, MEATS, ETC.		FRIDAY, May 5, 1871	
Chickens, apiece	75 @ 90	Tongues, pig, ea	15 @ 15
Turkeys, lb	20 @ 25	Bacon, Cal. lb	18 @ 20
Ducks, wild, lb	20 @ 25	Do, do	18 @ 20
Game, lb	50 @ 50	Hams, Cal. lb	18 @ 20
Teal, doz.	10 @ 15	Hams, Cross s o	20 @ 25
Geese, wild, each	37½ @ 50	Choice D Field	25 @ 25
do, domestic	50 @ 60	Wm. Walker's	25 @ 25
From Chicago	50 @ 60	Johnson's Or.	25 @ 25
Hens, each	75 @ 100	Salmon, lb	6 @ 8
Snipe, doz.	25 @ 30	Pickled, lb	6 @ 8
English, doz.	25 @ 30	Do, lb	6 @ 8
Venison, lb	10 @ 15	Rock Cod, lb	10 @ 12
Quails, doz	10 @ 15	Kingfish, lb	25 @ 25
Pigeons, dom. doz	10 @ 15	Do, do	25 @ 25
do, wild, doz	10 @ 15	Lake Big Trout	20 @ 25
Rares, each	40 @ 50	Smelts, lb	6 @ 8
Rabbits, tame	50 @ 60	Herring, fresh	60 @ 60
do, wild	50 @ 60	Do, do	60 @ 60
Squirrels, pair	35 @ 38	Tomcod, lb	25 @ 25
Beef, tend, lb	20 @ 25	Terrapin, doz	50 @ 60
Sirloin and rib	18 @ 20	Mackerel, lb	25 @ 25
Choice Steak	25 @ 30	Do, do	25 @ 25
Smoked, lb	15 @ 18	Sea Bass, lb	25 @ 25
Pork, rib, etc.	12½ @ 15	Halibut	62 @ 75
do, do	12½ @ 15	Sturgeon, lb	4 @ 5
Veal, lb	15 @ 20	Oysters, 100	100 @ 100
Outlet, doz.	20 @ 25	Chesep, doz	60 @ 60
Mutton chops	12½ @ 15	Turbo t	40 @ 40
Lamb, lb	12½ @ 15	Do, do	40 @ 40
Tongues, beef, ea	75 @ 75	Soft Shell	37 @ 50
		Shrimps	10 @ 12

* Per lb. + Per dozen. † Per gallon.

San Francisco Metal Market.

Shipping prices rule from ten to fifteen per cent. higher than the following quotations.

IRON.—Duty, 5¢ ton.	Railroad, 60¢ 100 lbs.	Bar	10¢ 100 lbs.
100¢ 100 lbs.	Sheet, polished, 3¢ 100 lbs.	common, 1½¢ 100 lbs.	
100¢ 100 lbs.	Plate, 1½¢ 100 lbs.	Pipe, 1½¢ 100 lbs.	Galvanized, 2½¢ 100 lbs.
100¢ 100 lbs.	English Pig Iron, 3¢ ton.	32 20	
White Pig, 3¢ ton.			40 00
Refined Bar, bad assortment, ½ D.		03	60
Refined Bar, good assortment, ½ D.		04½	00
Roller, No. 5 to 9.		02	04
Sheet, No. 10 to 13.		04½	00
Sheet, No. 14 to 18.		05	00
Sheet, No. 24 to 27.		05	00
COPPER.—Duty: Sheathing, 3½¢ 100 lbs.	Pig and Bar, 2½¢ 100 lbs.		
Sheet, ½ D.		02	36
Sheathing, Yellow		20	21
Sheathing, Old Yellow		10	60
Composition		21	22
Composition Bolts		21	22
TIN PLATES.—Duty: 23¢ cent. ad valorem.			
Plates, Charcoal, 12½¢ box	12 00		
Plates, Charcoal, 12½¢ box	10 00		50
Roofing Plates.	10 00		50
Bacon Tin Slabs, ½ D.			42
STEEL.—English Cast Steel, ½ D.			80
Crucible Steel, ½ D.			80
Lead, Pig, ½ D.	06	07	
Sheet	08	00	
Pipe	08	00	11
ZINC.—Sheets, ½ D.	10½	11	25
BORAX.—Refined	5		

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 18TH.

AMALGAMATING PAN FOR GOLD AND SILVER ORES.—Ira S. Parke, Virginia City, Nevada.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

METALLIC WHEEL.—J. H. Harris, S. F. This improvement in metallic wheels consists in making the wheel with sheet or plate iron sides, which extend from the hub to the rim, leaving a hollow space between them, thus forming a metallic box wheel suitable more particularly for use as bearing wheels for gang plows, and presenting the advantage of having no spokes or projecting parts to gather mud or dirt, but scouring and freeing itself continually. For the proper construction of this wheel, a tire and a hub of peculiar make are required, which comprise part of the invention. The advantage of the device will be felt in moving over loose or wet land, but more especially where the ground is a stiff adobe, as in California. The wheel is strong and durable and can be easily and cheaply constructed.

ROLLER SKATE.—D. Kerr and A. E. Hovey, S. F. The skating mania having spread throughout the land, one naturally sees new improvements in this device which renders the exercise possible, and examines them with interest. The present invention relates to 4-wheel roller skates, such as are constructed to turn from side to side in curves by tilting the skate block with the foot or shifting the weight of the skater to either foot. It consists in providing a plate to serve as a bearing for the journal which turns in the foot block, this having a lug or projection on it, and serving to prevent the displacement of the truck in which the wheels revolve and to relieve the strain on the bearings. It also consists in an improved method of seating the rubber block or spring upon the foot block, so that it can be more or less compressed as desired; and also in the etaudard which bears upon the block, and by means of which the trucks are held in position.

TELEGRAPH SOUNDER KEY.—J. Gamble, S. F. This is a very neat device by which the hand can be taught the proper motion for writing with the signal key, and the ear rendered familiar with the telegraphic sounds or clicks, without the necessity of having a battery. It is convenient, neat and cheap, and is coming largely into favor among those desiring of learning to operate.

THE HEALTHIEST COUNTRY IN THE WORLD. De Bow's mortality statistics show that the people of the United States are the healthiest of the globe. The deaths are three hundred and twenty thousand per year, or one and one-third per cent. of the population.—In England the ratio is over two per cent. and in France nearly three per cent. Virginia and North Carolina are the healthiest of the States, and have 638 inhabitants over 100 years of age.

LEWIS RIVER.—We learn that recently a dozen or more families have gone into the Lewis river neighborhood for the purpose of procuring farms and to settle. The prospect of the Northern Pacific Railroad being completed through this region within the next two or three years, is having a very stimulating effect in settling up the hitherto unoccupied land along the north bank of the Columbia and along its tributaries.—*Oregonian*.

SORROW comes soon enough without despondency; it does a man no good to carry around a lightning rod to attract trouble.

Refining Gold by Chlorine Gas.

We have spoken several times of this process, which, after being successively and successfully introduced in Australia and England, is now being tried at the Philadelphia mint. Some time ago, a description of the mode of operation which had been found most advantageous in practice, was described in the *Chemical News*, and this we now reproduce.

The French crucibles (say, size 17 or 18), duly prepared with borax, having been placed in the cold furnace, and slowly and carefully heated to dull redness, the gold (from 600 to 700 ounces to each crucible) is introduced, and the fire urged until the metal is melted, the necessary generation of chlorine having meantime been commenced by the introduction of a little hydrochloric acid, poured down the safety-tube, into the generators.

In order to fill the pots, and avoid the risk of splitting them by the wedging of the ingots at their contracted bottom, the gold for refining is cast in molds of a peculiar form. Two inches, from end to end, the sides and bottom of the iron ingot molds converge so as to produce a slipper shaped ingot, two of which, placed face to face, fit conveniently into the pot.

As soon as the gold is melted, from two to three ounces of borax, in a state of fusion, is poured upon its surface. If the borax is added sooner, it acts too much on the lower part of the pot; and if thrown in cold, is apt to chill the gold. The clay-pipe which is to convey the chlorine to the bottom of the melted gold is now introduced. (It is necessary to carefully heat the lower portion of this pipe for some ten minutes before introducing it into the molten gold, or it is apt to split.) At the moment of its entering the melted gold, the screw compression clamp is slightly loosened, so as to allow a small quantity of gas to pass through it, and thus prevent any metal rising and setting in the pipe, which is then gradually lowered to the bottom of the molten gold, where it is kept by means of a few small weights attached to the top. The compression-tap is now quite relaxed, and the gas is heard bubbling up through the melted metal, which it does quietly and without projection of globules from the pot.

Sufficient hydrochloric acid must be added to the generators, from time to time, to keep up a rapid evolution of chlorine. A rough general rule is to allow 1 imperial quart of acid of 1.15 specific gravity to every 10 ounces of silver in the alloy operated on. The column of liquid in the safety-tube, acting, as it does, like a barometer, affords a ready means of knowing the pressure in the generator, and of judging of the rate of production of the gas, as well as at once showing, by its fall, if anything irregular has occurred—such as a leak or crack of the chlorine pipe or pot. From 16 to 18 inches in the safety-tube correspond to and balance 1 inch of gold in the refining crucible. When the chlorine is first introduced into the melted gold, a quantity of fumes are seen to pass up from the holes in the crucible-lid; these are not chloride of silver, but the volatile chlorides of some of the baser metals, and they are especially dense when much lead is present in the alloy under treatment, forming a white deposit on any cold substance presented to them. After a time, longer or shorter, according to the impurities in the gold, these fumes cease. So long as any decided quantity of silver is present in the molten gold, the whole, or nearly the whole, of the chlorine is absorbed, little, if any, appearing to escape, and to be thus wasted; and it is found that the better the supply of chlorine the quicker is the operation.

It is a curious circumstance that, though in toughening with corrosive sublimate, this substance is only thrown on the surface of the melted gold, yet the whole mass is toughened by its action. It seems essential, in using chlorine, that the gas should pass to the very bottom to effect a complete refining.

As soon as the operation is nearly over, fumes of a darker color than those observed at the commencement make their appearance; and the end of the refining is indicated by a peculiar flame or luminous vapor of a brownish yellow color (occasioned by the free and now waste chlorine escaping), which can be seen on removing a small plug which fits into a hole in the lid of the pot. This, however, of itself, is not a sufficient indication; the process is not complete until the flame imparts to a piece of white tobacco-pipe, or similar substance, when held in it for a moment, a peculiar reddish or brownish yellow stain; so long

as it gives any other color, the refining is unfinished.

When these appearances are observed (usually for gold containing about 10 per cent. of silver in about an hour and a half from the introduction of the chlorine), the gas is shut off, and the pots removed from the fire, the white crucible lifted out of the black one, and, together with its contents, allowed to stand seven minutes, until the gold becomes cool enough to set or solidify. The chloride of silver, which remains liquid much longer, is then poured off into iron molds. The crucible is then inverted on an iron table, when the still red-hot gold falls out in the shape of a cone; this is slightly scraped, and thrown, hissing, into a concentrated solution of common salt, to free it from any adherent chloride of silver.

An alloy containing originally 89 per cent. of silver, and 1 per cent. of base metals, will yield, on an average, a cake of chloride weighing, with a little adherent borax, 16 ounces for every 100 ounces operated on.

It is necessary very carefully to dry and heat the molds into which the chloride of silver is poured, as the slightest moisture causes the latter to be violently dispersed while red-hot, to the great risk of the bystanders. With ordinary care, this will never happen; but attention is called to the point, as a very deliquescent chloride of iron is apt to form on the molds.

The gold is now fine, and simply requires remelting into ingots.

As before stated, it is found that all these operations can readily be performed, and about 2,000 ounces refined per day in three common melting furnaces, between 9 A. M. and 2 P. M.; 98 per cent. of the gold originally contained in the alloy operated on is then ready for delivery.

The other 2 per cent. remains with the chloride of silver, partially in the metallic state, and partly in a state of combination with chlorine, and probably silver.

To free the chloride of silver from this combined gold (that mechanically mixed being eliminated at the same time), it is melted in a boraxed white pot, with the addition of from 8 to 10 per cent. of metallic silver, rolled to about $\frac{1}{4}$ inch thickness. The chloride of gold is, by this means, reduced at the expense of the metallic silver, chloride of silver being formed; while the liberated gold sinks, and melts into a button at the bottom of the pot. As soon as the whole is thoroughly melted, the pot is removed from the furnace, and allowed to stand about ten minutes; and the still liquid chlorides of silver is then poured into large iron molds, so as to form slabs of a convenient thickness for the next operation, that is, its reduction to the metallic state.

After the fusion of the chlorides, a small quantity of a curious spongy substance adheres to the sides of the crucible used, probably consisting of subchloride of silver; but since it always contains a little gold, care has to be taken in pouring off the fluid chlorides, to prevent this auriferous sponge from falling out and mixing with them.

The fusion of the chlorides with metallic silver does not remove every trace of gold; but, with proper care, the amount remaining in the silver produced need not exceed 3 parts in 10,000, or about 2 grains of gold in ever pound (troy) of silver—a quantity too small to pay for further extraction in this colony.

The slabs of chloride of silver are reduced without difficulty by plates of wrought iron or zinc, in the usual way; but my friend and colleague, Dr. Leibius, has contrived a very excellent apparatus for this purpose.

[To be continued.]

Hidden Life.

Every drop of water teems with life. You cannot quench your thirst, even with the purest water, without swallowing scores of puny lives. The ocean is stirred by the huge leviathan, who maketh it to boil like a pot. And therein, also, in myriad varieties, are the lesser forms of life, running down to the animalcule, so small that one hundred and fifty millions of them weigh less than a grain!

The atmosphere is full of life, and the dry land swarms with animals of unwritten names and unknown orders. They inhabit the air we breathe, the water we drink, the food we eat. They move and have their being in sweets and sour—in the toughest flint, as well as in the mellow pulp of the peach—in blossoms and fruit, in buds and leaves, in roots and branches, in the bodies of animals; in our own human bodies are tiny tenants—populous colonies of little inhabitants, all too minute to be seen or comprehended. * * * * *

In an office, recently, we reached a hook from the shelf, and detected a speck of a

white insect hurrying off at a double-quick to hide behind a grain of dust—for we had opened on him by surprise. The little fellow was retreating rapidly,—for the shaking of a book-leaf, or even for as much of a leaf to tremble as would hold a single letter, was to him a commotion equal to a hundred earthquakes! But we pursued him, excited as he was, until we chased him on a bar of polished brass, and by a grand stratagem drove him to an entrenchment on the bar.

He was smaller than the dot of an *i* in your pocket Bible. But we pressed him into our service, a prisoner in his house of brass, and snugly covered by a glass slide, until we reviewed him beneath the microscope. His prison was less roomy than the eye of a fine cambric needle; yet, under the microscope, his liberties as well as his body were greatly enlarged. That creature, to the naked eye so small, was now, apparently, as large as a bee, and white as snow, with limbs of perfect symmetry and proportion. We were affected by his efforts to be free, he hurried from side to side of his prison-house, and tried to force the walls apart. Through his clear, transparent flesh could be seen the beatings of his heart, and the purple veins of his blood. His movements were restless and pitiful as those of a newly-caged bird. If we could, by some magnifier of sound, have heard his voice and understood his language, doubtless it would have been a plaintive cry for liberty.—*Journal of Microscopy*.

Dr. Mendenhall's Rain Theory.

EDS. PRESS:—I would like to ask some of your meteorological contributors why it is that the north wind, which occasionally sweeps across over the State with such damaging effect, is dry and hot, coming as it does from anywhere but a hot and dry country.

If not troubling you too much I would also like to make a remark in regard to an article in your issue of March 11th, about a Dr. Mendenhall acting upon a theory in his farming that as the rains are in Central America and Mexico, so they will be in California. A similar statement was published by the *Alta* in the fall of 1869 and a wet season predicted. I saw the same theory adverted to in the *Bulletin*, in the fall of 1870, and supposing it to be reliable, a very wet season was again announced.

In both years the theory has most completely failed. May we not have got the wrong end of the story—got the bull by the tail instead of the horns. We are taught that all our moisture rises under the equator and is carried north by regular trade winds; the evaporation is constant and regular. If through climatic changes of which we have no data the rainfall should be excessive in Central America and Mexico, would not our share be proportionally less; they receiving their share and part of ours? If their rainfall was light would we not be likely to get an over-dose. Yours respectfully, G. W. T. O. San Gregorio, April, 1871.

Successful Irrigation.

The Woodland Ditch Company are irrigating the grain fields along the line of their ditches, at the rate of five hundred acres a day. They had, up to the 22 inst., irrigated over five thousand acres of grain, and that to which the water was first applied was looking well and gave promise of a good yield. It is now believed that nearly all the grain irrigated by this company will produce a fair average crop. The same grain without such irrigation would have been an almost total failure. It is said that twenty-five thousand acres could have been irrigated by the ditches of this company, if they had commenced in season. The cost to the farms for the water is about \$4 per acre, and the grain will probably be worth from \$25 to \$30. It is believed by many that winter irrigation will pay even in all seasons. It is stated that the increase of grain even in wet seasons is at least 20 per cent. on land well irrigated in the fall or winter before sowing.

WHAT NEXT?—A "petrified whale" has been discovered in Los Angeles county, about 10 miles inland, near Aliso Springs. Petrified trees are at a discount.

POPULAR LECTURES.

The Latin we Speak.

[Prof. Martin Kellogg before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Fourth Series. Reported expressly for the PRESS.]

LECT. II. April 29.—Much has been said, remarked the lecturer, concerning the importance of the Anglo-Saxon element of our language, and of the necessity of its study. That it is important and ought to be studied, I fully agree; but this does not by any means imply that the classics ought to be neglected. Proper attention should be given to both. It is my province to-night, however, to speak of the connection of Latin with our speech, and to show how largely it enters into our every-day language.

The English language is indeed very composite. First, there is the Celtic element, then that derived from the Norseman, and the Danish. A very large proportion is from the Saxon, and the Norman invasion had a great influence. But long before the Norman conquest, Cæsar had over-run Great Britain, and Latin was engrafted on the stock. We have many French words, but French is only a daughter of the Latin. Latin and Greek are used largely in scientific terms. So it has come to pass that Latin and Greek form an important part of our language.

As I before said, I am to call your attention to-night principally to the Latin element. Now this is not confined, as some of you perhaps may have imagined, to the domain of high philosophy and abstruse thought. It is used largely here. But, as I hope to show you, it occurs also very largely in every-day speech, forms a familiar and indispensable part of our ordinary, work-a-day talk.

The lecturer proceeded to give many common examples of this. His examples were numerous, well-chosen, and often gave opportunity for quiet humor, which was appreciated by the audience, who were at first, however, a little puzzled by the supposed serious character of the lecture. We give a very few of the

Examples.

United States. United is from *unus*, one, through *unire*, *unitum*, to unite, make one. State is from *status*, standing, from *stare*, to stand. It means rank, condition, then people of a certain rank or condition, and then a body politic.

Sierra Nevada. Sierra comes from *serra*, a saw, from the resemblance of a chain or ridge of mountains to the teeth of a saw. Nevada is from *nivis*, snow. We get these through the Spanish.

Territory comes from *terra*, land, and means a tract of land. County comes from count, and meant originally the district belonging to a count. A count was a companion of an emperor, and the word comes from *comes*, companion, which is from *con* and *eo, ire*, to go with. The verb, to count, comes from a different source, from *computare*, to compute. Comptroller or controller, a person who examines and certifies accounts, is from this same word.

Senate comes from *senex*, an old man; representative from *re-presentare*, to place before, to present. Congress comes from *congredivere*, to come together. Capital is from *caput*, the head; it is the head or chief city.

Science is from *scientia*, from *scire*, *sciens*, to know. SCIENTIFIC is from *scientia*, science, and *facere*, to make; it means therefore to make to know. PRESS is from *pressare*, to squeeze, to press. *Alta* is from *altus*, high; the *Alta* might add as a motto to some of its editorials, *videt ut Alta stet*, you see how the *Alta* stands, [or *ut Alta stet*, how's that for high?] *Bulletin* is from *bulleta*, from *bulle*, an edict of the pope, and thence means a statement of facts, a public notice or announcement, especially of news recently received. *Call and Chronicle* come from the Greek, and you know the proverb, "when Greek meets Greek, then comes the tug of war." *Examiner* comes from *exagmen*, from *exigere*, to demand, exact. *News* is from *novus*, new. *Transcript* is from *trans-scribere*, to write over or across.

Pupil is from *pupilla*, a little girl. It is pleasant for most boys to find, from the study of Latin, that they have a little girl in their eye.

The study of Latin will prevent many mistakes in using language. A minister, who was accustomed to the expression

"fiend incarnate," in denouncing an individual, wound up his discourse by calling him a "man incarnate." Now incarnate comes from *in* and *carnis*, *caro*, meaning "in the flesh." A fiend incarnate, a devil in the flesh, is an unpleasant personage, but a man incarnate, a man in the flesh, is something very common and by no means necessarily bad.

You will have seen by the few examples, which are chosen from our common talk, that a knowledge of Latin keeps us from absurd mistakes, gives us fine points and distinctions, brings up pictures, even histories, to the mind, and aids us in expression and in force of language in our every-day intercourse with one another.

The Gas Wells of Erie, New York.

It is something worthy of extra notice, says the *Iron Age*, to find a city lighted, and its dwellings warmed, with natural gas, procured merely at the same expense as boring for water. Erie rejoices in this blessing, and the subject is still sufficiently new to be interesting. The first presence of gas was noticed, four years since, in digging a potash well within the city limits, the flow of gas from which nearly suffocated the workmen. This well was filled up, but the same result occurred in another near by. Experiments were then made by sinking tubes in the mud of a stream and igniting the escaping gas, which burned freely. To a Mr. Brevillier, an intelligent German, is due the first practical action in the matter. This gentleman, associated with a few others in a company, sunk a well for petroleum on his premises; as an oil well it was a failure, but as a gas machine, a splendid success. For three years it wheezed and gas-ed until, the lease of the company expiring, the proprietor laid pipes conveying the gas to his house and soap works, where it has since been used. Not one pound of coal has been consumed since then in the establishment. The various processes of melting, rendering and soap boiling are carried on with gas as the fuel, the building is illuminated, while a beacon on the roof lights that portion of the city. With all this, and the amount used for lighting, warming and cooking in his dwelling, but one-sixth of the gas furnished by the well can be used, the remainder escaping through a safety valve. At the Conrad brewery a gas well was lately opened, by which vats of lager are kept boiling, and malt ovens working with an even temperature, the steam gauge standing at 75 day after day, without a change of a pound per day, and all without care from any one. The uniformity of pressure keeps the stream of flame under the boiler or kiln at an exact strength, supplying the most perfect heat for brewing. But one-fourth of the gas from this well is used. The city, also, has utilized the product with the happiest results. A well was put down by the City Gas Company, near the main reservoir, which has yielded a uniform daily supply of 24,000 cubic feet. This is conducted directly into the reservoir, and 12,000 feet of manufactured gas added, thus furnishing the daily supply of the city.

Hear how a private individual luxuriates in native fuel, free of cost: State Senator Lowry has a model well, from which pipes lead to every grate in the house, to the kitchen range, and to smaller pipes for chandeliers. In fire places are laid the Fruch imitations of wood, pierced with minute openings to permit the escape of gas, thus simulating the cheerful blaze of the wood fire. An inch pipe supplies the unconsumable firewood, while a small bronze wheel regulates the supply by a turn. With fourteen fires burning, sixty gas lights in the house and grounds, the Senator lives in an atmosphere of perpetual summer. He even warms the cellar for the purpose of a laundry drying room. The only unpleasant thing about this wonderful supply is the question of permanence. This is hopeful, however, for the first well sunk for oil is in its seventh year, with an undiminished yield of gas, while in some cases, as at the Erie Car Works, the supply increases with time. The average depth of the Erie wells is 600 feet, and the cost about \$1,500; as each well yields from 10,000 to 30,000 feet of gas per day, they generally repay their cost within three months. With the proximity of iron ore and facilities for receiving the ores of Lake Superior, Erie presents a splendid opportunity for the manufacture of iron with this fuel, free of cost. It is strange that with the energy for which the place is noted, this has not been attempted. Iron should be made here for \$12 per ton, if not less. Be this as it may, these wells certainly afford a most curious and gratifying evidence of nature's bounty.

GOOD HEALTH.

The Philosophy of Drunkenness.

A sudden mental emotion can send too much blood to the brain, or too great mental excitement does the same thing. It is the essential nature of all wines and spirits to send an increased amount of blood to the brain.

The first effect of taking a glass of wine or stronger form of alcohol, is to send the blood there faster than common; hence it quickens the circulation; that gives a red face; it increases the activity of the brain, and it works faster, and so does the tongue. But as the blood goes to the brain faster than common, it returns faster, and no special permanent harm results. But supposing a man keeps on drinking, the blood is sent to the brain so much faster, in such large quantities, that in order to make room for it, the arteries have to enlarge themselves; they increase in size, and in doing so press against the more yielding flaccid veins, which carry the blood from the brain, and thus diminish their size, their bores; the result being, the blood is not only carried to the arteries of the brain faster than is natural or healthful, but is prevented from leaving it as fast as usual; thus a double set of causes of death are set in operation. Hence, a man may drink enough brandy or other spirits in a few hours, or even minutes, to bring on a fatal attack of apoplexy; this is literally being "dead drunk."—*Hall's Journal of Health.*

Boiled Corn Beef.

This is a staple food in a majority of families during several months of the year, and in most cases the cooking may be greatly improved. The two chief errors are, first in not cooking it long enough, and second in losing a large proportion of its real nutriment. We always prefer it prepared as follows: Soak in warm, not hot water, just long enough to take out all excess of salt. Then cover it so that the steam will condense upon the under side of the cover and fall back. This will prevent boiling away and also the loss of much of the nutriment which goes off with the steam. Boil the meat several hours or until it is so thoroughly done that it will not hold together to be lifted with a fork. If there be any bones take them out, since if cooked enough, the meat will cleave from them readily. Pack the meat by itself in a deep dish, mixing well together the lean and fat portions. Next skim the fat and boil the liquor down so that when poured over the meat it will just fill the spaces between the pieces. Then lay over the whole a flat cover which will fit into the dish, put on a dozen or twenty pounds weight and let it stand until cold. Several flat-irons or a large stone will answer for the weight, or if convenient it may be set under a cheese-press. Prepared in this way, the poorest piece of tough corned beef will be made tender and juicy. Boiling down and using the liquid, saves the most nutritious portion which is usually thrown away. The gelatine of the condensed gravy, when cold forms a solid mass with the meat, which may then be cut up into slices for serving upon the table. If the fat and lean portions be mixed, when cut up cold, the pieces will present a beautiful marbled appearance. Corned beef prepared in this way will not only be eaten with a superior relish, but will not on account of its toughness, be swallowed half masticated.

The Uses of Walking.

Walking, for young and active people, is by far the best exercise; riding is good for the elderly, middle aged, and invalids. The abuse of these exercises consists in taking them when the system is exhausted more or less by previous fasting or by mental labors. Some persons injudiciously attempt a long walk before breakfast, under the belief that it is conducive to health. Others will get up early to work three hours at some abstruse mental toil. The effect in both instances is the same; it subtracts from the power of exertion in the after part of the day. A short saunter or some light reading before this meal is the best indulgence of the kind; otherwise the waste occasioned by labor must be supplied by nourishment, and the breakfast will necessarily become a heavy meal, and the whole morning's comfort sacrificed by a weight at the chest, from imperfect digestion of food. These observations apply especially to elderly persons, who are prone to flatter themselves into the persuasion that they can use their mental or bodily powers in age as in youth.

Endurance and Diet.

Even the experienced trainers of the prize-ring cannot decide what is the best food for training men up to their greatest powers of endurance. They have a prejudice in favor of mutton-chops and underdone beef steaks; but it is by no means sure that this is the best. The Roman soldiers—who conquered the world, and built roads from Lisbon to Constantinople, and who were all trained athletes, marching under a weight of armor and luggage that few men in our day could carry—lived on coarse, brown wheat or barley bread, which they dipped in sour wine.

In our own day, the Spanish peasants are among the strongest and the most agile men in the world. They will work all day in a copper mine, or at the olive press, or the wine press, under a hot sun, and then dance half the night to the music of a guitar. What does he live on? A piece of black bread, an onion, perhaps half a watermelon. You may see him dipping his piece of bread into a horn of olive oil, and then into some vinegar, made hot with pepper and garlic, and then he is happy. Sometimes he gets a draught of harsh, sour wine, but not strong. All the strong wine is sent to England.

The Smyrna porter walks off with a load of eight hundred weight. His only food, day after day, is a little fruit—a handful of dates, a few figs, a bunch of grapes, some olives. He eats no beef, pork, or mutton. His whole food does not cost him a penny a day.

The Coolie, living on his rice, can out-work the negro fed on bacon. The Arab, living on rice and dates, conquered half the world.

The most tremendous muscular force, and the greatest powers of endurance may be nourished upon a very moderate diet.

The Irish peasant is the strongest man on the face of the earth. And his principal food is potatoes and brown oatmeal bread, with buttermilk. He scarcely tastes flesh meat a dozen times a year.

Beneficial Results of Sunshine.

Seclusion from sunshine is one of the misfortunes of our civilized life. The same cause which makes the potato-vines white and sickly, when grown in the dark cellars, operates to produce the pale, sickly girls that are reared in our parlors. Expose either to the direct rays of the sun, and they begin to show color, health and strength. One of the ablest lawyers in our country—a victim of long and hard brain labor, came to me a year ago, suffering with partial paralysis. The right leg and hip were reduced in size, with constant pain in the loins. He was obliged in coming up stairs, to raise the left foot first on every stair, dragging the right one after it. Pale, feeble, miserable, he told me he had been failing several years, and closed with, "My work is done. At 60, I find myself worn out." I directed him to lie down under a large window, and allow the sun to fall upon every part of his body; at first, ten minutes a day, increasing the time until he could expose himself to the direct rays of the sun a full hour. His habits were not essentially altered in any other particular. In six months he came running up stairs like a vigorous man of 40, and declared with sparkling eyes, "I have twenty years more work in me." I have assisted many dyspeptic, neuralgic, rheumatic, and hypochondriacal people into health by the sun-cure. I have so many facts illustrating the wonderful power of the sun's direct rays in curing certain classes of invalids, that I have seriously thought of publishing a work, to be denominated the "Sun-Cure."—*Dr. Warren.*

How to GO TO SLEEP.—No doubt there are many of our readers who understand this delightful art to perfection; but there are certain conditions of animal economy, even in a state of health, when "tired nature's sweet restorer" refuses to close our lids, and seems pertinaciously to fly from us, though wooed ever so warmly. The most natural and facile method is to place the head in a comfortable position, and then, taking a full inspiration, breathe as much as possible through the nostrils. The attention must now be fixed upon the fact of breathing.—The patient must imagine that he sees the breath passing from his nostrils; and the very moment he brings his mind to conceive this, apart from all other ideas, consciousness and memory depart, and—he sleeps. The method is strange, but simple, and the experiment will prove its truth.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG
W. B. EWER. JNO. L. BOONE..

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, May 6, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, May 3, 1871. Legal Tenders
buying @90%; selling @91. Gold in New York to-day
111%

Table of Contents.

Bobbin Winder, Ill., Yosemite.....	273
MECHANICAL PROGRESS.—Endless Screw; Tunneling Machine; Compressed Metal; Boiler Engineering; Sherman Process; etc.....	274
SCIENTIFIC PROGRESS.—Electrical Machines; Arctic Expedition; Natural Selection; Bunsen Battery; Ocean Circulation; etc.....	274
Alkali; Cal. Cochineal; Grasshoppers; Bull Run Dist.; Public Lands.....	275
MINING SUMMARY; Shareholders' Directory; Mining Stocks; Market Rates.....	276-277
List of Patents; Notices of Patents; Refining Gold by Chlorine Gas; Rain Theory; Irrigation.....	278
The Latin We Speak; Gas Wells of Erie, N. Y.; Good Health.....	279
Population of S. F.; Oregon; Water Supply.....	280
Exploring Expedition; Roller Skate, Ill.; Medical Convention; Ice Machines.....	281
Fish; Vinegar; What We Eat; Domestic Receipts; Mechanical Hints.....	282
American Medical Association; Academy of Sciences.....	284

Notices of Correspondents.

SUBSCRIBER writes us: "Old brass spoons can be washed with quicksilver and made to appear like silver spoons; if the quicksilver is not poisonous, it is certainly a quick and cheap way. Is it dangerous?" It is. Quicksilver amalgamates with most metals, and thus effects a "false silvering." The public cannot be warned too strongly against such a "quick and cheap" method.

Population of San Francisco.

Mr. Langley has replied to the reply of Mr. W. G. Morris (U. S. Marshal) to the strictures of Mr. Langley on the U. S. Census. Mr. Langley defends the accuracy of his Directory, and answers certain challenges to publish a number of names omitted in the census, by publishing many more names than asked for. On one point both gentlemen agree,—in the enumeration of the Chinese.

We think that Mr. Langley shows that the returns of the census were too small. We would not assert that Mr. Langley's returns were absolutely correct. But then we can only judge concerning the arguments advanced on either side, for the careful examination and compilation of such statistics is a job too large for our hands and one which we must leave to others.

The matter is perhaps not yet settled to the satisfaction of the public. The popular belief is, so far as we can ascertain, that the census is too low and the Directory too high. The census takers could have no object in giving aught else than the truth, yet might have made mistakes. The Directory is concerned to have the numbers as high as possible; but enjoys the best of reputations for general accuracy. Any one acquainted in the slightest degree with the enormous labor of compiling such statistics, will agree that there are many chances for errors.

The question still remains for public satisfaction: 150,000 or 170,000? We modestly confess our inability to decide between the two. Splitting the difference is a common method of compromise, not always of the greatest accuracy, and probably, in the present case, not satisfactory to either of the two parties of the argument; yet we can just now suggest no better.

ABOUT TO ARRIVE.—The San Francisco Silk Factory will receive its machinery from the East in a few days. Twenty tons of it were shipped on the 15th ult.

Oregon.—A Want of Our Coast.

There is a State lying to the north of us which has an area as large as that of the States of New York and Pennsylvania combined, but with a population of a little over one per cent. of that of these two States. It has good society, numerous and excellent schools and churches, and offers manifold inducements for immigration. Its growth, although slow, has been steady and healthy, without wild speculations or financial crises to any great extent.

Its climate is varied, generally most pleasant and healthy and in some places unsurpassed. Its arable land is sufficient to support a million of people. The agricultural productions of its soil are many, and the fertility of the land very great. Fruits of nearly every description are raised with success. For the stock-raiser there is an abundance of excellent grazing land. Its timber is of immense extent and of the best quality for manufacturing and other purposes.

Oregon is also rich in mineral. Its placer mines have yielded extensively and although the cream may have been taken off, enough is left for still many a good days work. Its quartz mines are being opened and worked to a considerable extent. But its iron beds and its coal deposits, already yielding largely now, promise the richest results for the future.

Its salmon fisheries are by no means unimportant, engaging large amounts of capital and the labor of hundreds of men. The manufacturing interests are growing largely. Woolen, lumber and flour mills, form the most prominent items, but many other important branches of mechanical industry are well represented. The resources of timber, iron and coal, with the fertility of the soil, the favorable climate and the abundance of water power show what can be done in manufacturing.

Cities and towns are dotted here and there over the State. Railroads are being built to traverse the land in various directions. Good wagon roads already exist. Such are a few items about Oregon.

What Oregon Needs.—What the Pacific Coast Needs.

Now what does Oregon want? Immigration, and immigration of a certain kind. It does not want people who are willing to reside only in cities. Such men and women had better stay away. It is not the large towns which demand immigrants; these can get population at any time hereafter. But it is the people to go into the country, to till the land, open the mines, cut the timber, raise stock; it is men of stout limbs and willing hearts. One man in the country is worth three in the city. In the country there is room for all and work for all; in the city there is room and work for only a certain number, and that number is certain to be filled as necessity requires. The city can always get all the people from the country that they want; the reverse is not true.

Oregon does not want to have a quarter of her population in one place. It sounds rather nice to be able to talk of our large centers of trade and population; but Oregon is too young and too poor yet to be able to live on sound.

The great question is, how to get population. Ben Holladay is taking a step in the matter which, if successful, will prove an immense benefit to the whole coast; for he will introduce an industrious and law-abiding community where it is needed. The railroads are attracting people. The Board of Statistics, Immigration, and Labor Exchange of Portland are publishing pamphlets for general distribution, giving statistics and the like, and are otherwise doing good work. We are indebted to them for a number of publications, and likewise to the State Agricultural Society.

Now these publications are excellent and undoubtedly do much good. But they fail to answer the very first question of all would-be immigrants, and a question of vital importance to them. These people as a general thing have no money to spend in traveling all over our extensive coast in order to find where to settle. They want to know just where to go to. They require to be told where land is open to pre-emption or under the homestead law, as well

as where it is for sale at moderate prices.

Before immigration can be induced in large numbers by the publications, these pamphlets must have maps appended to them, and in these maps must be denoted the vacant lands, as well as the lands for sale, and the descriptions must give something concerning these localities. Whatever its relative advantages or disadvantages, we believe that that section which publishes such maps and has out live agents, will be the first to grow in wealth and numbers.

The remarks which we have made concerning the needs of Oregon, will apply with equal force to any part of our coast. We are far off from the great centers of population, farther from them than they are from us, for we are more accustomed to venture forth into the uncertain. We must show them not only what we have, but where we have it; for to wander over the millions of square miles of our coast in order to pick out a home is what the immigrant will not and cannot do.

Our Water Supply.

We have been having another deluge of water discussions, of which we enjoyed so copious a supply a year ago. The discussion has, to some considerable extent, been muddled through personal interests and through the prevalence of San Francisco fogs and sand, all of which have apparently collected in the eyes and ears of many of our worthy citizens to such an extent that it has been hard for them to get a clear, impartial view of the question.

Three propositions are now placed before the public. Two of these are for furnishing water by private parties, the third for a public or a private enterprise, as the city may elect. They are: the Peninsula supply, represented mainly by the Spring Valley Water company; the Lake Tahoe supply, represented by Col. Von Schmidt and associates; and the Blue Lakes Project, represented by W. V. Clarke. The latter has not been pushed so much as the others, although we have good reason to think that we shall hear more of it before many years have elapsed.

The question as to whether we can get a sufficient amount of good water from this Peninsula is naturally the first to arise. This is by no means settled. That our present supply is insufficient we think is now universally allowed. We need only to quote the words of Mayor Selby, a gentleman removed from all grounds of suspicion even. He says: "That the amount of water now supplied to the city will not suffice for the future, is obvious. With the present resources, the Spring Valley company are unwilling to allow water to be used for flushing the sewers, street sprinkling, and for the public grounds." In view of this statement, any figures as to the mere capacity of reservoirs are of but little account. It is easy enough to build large reservoirs; the difficulty is to fill them with good water.

We are inclined to doubt the probability of our getting enough good water from the Peninsula. The area of catchment is large enough and the amount of rainfall sufficient, if we can catch and preserve the whole amount. But then to get the benefit of this, the city must own the area, keeping off farmers and others. We cannot use water collected in dribbles from cultivated lands. And, again, water kept nine months in pools is hardly to be regarded as a wholesome article.

The Lake Tahoe project is certainly worthy of consideration. The plan is to take the water from Truckee river at a point some four miles from the lake, thence to carry it by Squaw Valley to a tunnel, 12,000 feet long, which is to be cut through the Western Summit. From here the water will be led to the bed of the North Fork of the American River. The water may be taken again from the river at or near Dutch Flat and run by canal to Auburn, or it may be taken out higher up for use in the mining localities south of this.

From Auburn a pipe will lead to Sacramento, then to Vallejo or vicinity, across the straits of Carquinez, to Alameda, and under the Bay to this city, having a pressure here of some 370 feet.

This project has the advantage of excellent water and of being of immense importance to the mining districts on the way. There are, on the other hand, great engineering difficulties and perhaps trouble from the State of Nevada. The company ask a loan from the city to the extent of six millions of 6 per ct. thirty-year bonds on supplying 20,000,000 gallons daily, and will furnish 20,000,000 gallons additional, at or near Auburn, if required, the city to pay the expense of laying their own pipes. The Board of Supervisors having passed an order providing for the issuance of the bonds, the Mayor has vetoed it as a most unwise business transaction, and the veto has been sustained.

The last, the Blue Lakes, project, is to take water from the Blue Lakes, in Alpine county, and the head waters of the Mokelumne, lead it in a canal to Spring Valley, near Mokelumne Hill, thence by pipe to Livermore Pass, thence to Alameda, and across the Bay to this city. This has also the advantage of a full supply of excellent water, no question as to rights, immense benefits to mining and agricultural districts, etc. The distance is given as one-fifth less than that to Lake Tahoe. Mr. Clarke proposes to give the city the entire ownership of the works, which he will build for them. The city would then be able to get a large revenue from sales of water on the way.

Now we do not propose to argue in favor of or against any one of the projects. We protest, however, against the way they are received by the public. The chief point in favor of the Peninsula supply, in the popular mind, is an unwillingness to give any more money, at present, than is absolutely necessary from the city treasury, because so much is lost in every such transaction by dishonest operations. There is an opinion that sufficient for the day is the evil thereof, and an inclination to let the future take care of itself; this is natural, but hardly wise.

Besides this, possible trouble with Nevada, and distrust of the financial ability of the company, and want of security to the city, are the arguments against the Lake Tahoe project.

The Blue Lakes project is not so widely known. Somebody didn't know that there were any such lakes, or didn't want to know it, and it was squelched in the Board of Supervisors, although it was a direct proposition to let the city own the works.

Now this is not the right way to deal with one of the most important subjects of the day. We cannot take it for granted that there is or is not a proper supply on the Peninsula, that we can or cannot get water from Tahoe, that we can or cannot own water-works furnishing a sufficient supply from the Blue Lakes, that there are or are not other available sources of supply.

We ought, as the Mayor suggests, to have the whole matter thoroughly examined by proper persons,—by a board of engineers, we would suggest, to be appointed by his Honor, Mayor Selby. A proper examination of the Peninsula, and of each of the above projects, or of any others proposed, would cost us some money, but it would save the city an immense amount. If we expect that San Francisco will become the important place of which we talk so much; we must provide for its future.

A THOMPSON ROAD STEAMER, from the factory of D. D. Williamson, Patterson, N. J. (office at New York), will be in Stockton about the 10th inst. Another will be at Salt Lake City, about the 8th, having been ordered by the Youngs. The manufacturers are receiving very heavy orders for this engine, for use in all parts of the country.

Another Exploring Expedition.

Over a year ago, a party was formed to make a typographical and geological survey of Nevada and Arizona, to fill up the gaps left by previous U. S. surveys. The expedition was to be made by the government, under charge of Lieut. G. W. Wheeler, of the U. S. Corps of Engineers. The party assembled in this city, some coming from the East, but there was a hitch in regard to getting transportation, and the company was disbanded.

Lieut. Wheeler has since been at Washington, has been able to organize a second party and make all necessary arrangements, and on last Tuesday the expedition started off. As it is unusually strong in talent, we append the names.

OFFICERS.—Geo. W. Wheeler, U. S. Engineer Corps; E. W. Bass, U. S. Engineer Corps; D. A. Lyle, Second U. S. Artillery.

MEDICAL AND PERSONAL STAFF.—Surgeon, A. H. Cochrane; Hospital Steward and Naturalist, Frank Hecox; Hospital Steward, T. V. Brown; Secretary, Fred. W. Loring.

PROFESSIONAL ASSISTANTS.—Geologist, G. K. Gilbert; Collector, Fred. Bischoff; Collector, J. Kochlor; Assistant Observer and Computer, E. P. Austin; Assistant Observer and Assistant Geologist, A. P. Marvin; Meteorologist, William J. Bradley; Chief Topographers, P. N. Hamel, Lorin Nell; Assistant Topographers, Chas. E. Fellerer, J. K. Mauran; Photographer, J. H. O'Sullivan; Artist and Photographer, E. Richardson.

Mr. Gilbert is one of the best-qualified persons for his position who could be found. He was recently attached to the Ohio Geological Survey, and is very warmly endorsed by Prof. Newberry. Mr. Austin is very favorably known from his connection with the Observatory of Harvard University. Mr. Marvin is from the Harvard Scientific school. Mr. Loring, who graduated last year at Harvard, has ample qualifications. Mr. Hamel is one of the very finest draughtsmen in the country. The rest are also of the highest reputation.

The party go to Camp Halleck, on the C. P. R. R., and then strike south, exploring sections of southern Nevada, California, Utah, Arizona and New Mexico, and continuing surveys previously made by Lieut. Wheeler and others. The directions are broad, ordering extensive examination into the climatic, geological, mineral, agricultural and topographical conditions. An appropriation of \$50,000 has been made for the work. The Western Union Telegraph Company will give all possible aid for the determination of the latitude and longitude of points selected.

The report of the expedition will be a valuable contribution to science, and a practical benefit to the people of this section of the Union. The support of such explorations is creditable to the age. We know but little of a great part of our country, and what we do know is very imperfect. We are rejoiced at the prospect of further and more extensive explorations. We have some grounds for believing, we may add, that we shall have a National Geological Survey before many years have elapsed. That would be a consummation devoutly to be wished.

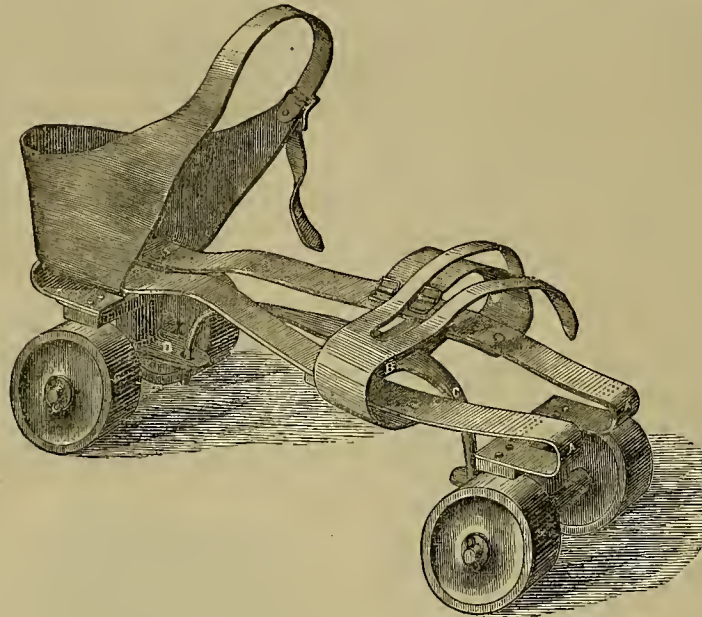
A WELCOME CALL.—We have had the pleasure of a visit from Gen. Spear, Examiner in the U. S. Patent Office, and J. M. Thatcher, one of the members of the Board of Appeal. These gentlemen are on a flying visit to our State and intend to make the rounds of our slightly places. Two weeks is a short time to stop in California, particularly if one does his visit justico by a peep at all of our curiosities; but enough can be seen to get a good idea of what we are, and what we expect to be, more especially the latter, if one takes the word of a '49-er. We wish these gentlemen a pleasant round trip and all the benefits possible to be derived from it.

A New Roller Skate.

The introduction of roller skating upon this coast has created an excitement in almost every hamlet and village in the country, which is unequalled since the days of the short-lived velocipede; but unlike the velocipede, the skating mania "holds out to burn," and the probability is that it will hereafter be one of our permanent sports. It is certainly a pleasant one, and besides the pleasure it has the advantage of being a healthful exercise. With persons living in a cold climate, ice skating is the winter exercise, but the season of ice is limited, and consequently the skates must be hung up to await another winter's ice. The present style of skating, however, can be enjoyed in all seasons and at all times, the only necessity being a good smooth floor, in lieu of ice.

Roller skating is no new invention. The old parlor skate, which was constructed with several rollers placed in line under a foot-block, was extensively used many years ago, but not until the skate was constructed so as to carry the skater in curves in either direction, by the movement of his body, did this kind of skating amount to much.

As an exercise, skating is unequalled.



BOONE'S IMPROVED ROLLER SKATE.

Fat men skate to get lean, and lean men skate to get fat, and for all that we know to the contrary, both are successful. The exercise is graceful, and the gliding sensation pleasant—that is, after one has learned to glide, which consummation is arrived at only after sundry and awkward attempts, often resulting in seeing stars in the ceiling.

The illustration presented herewith represents a new and improved style of roller skate, which is known as the C-spring skate. This skate has no foot-block, but instead has two longitudinal steel springs, A, A, one passing along at each side of the foot, so as to act as a foot-support and at the same time serve as a means of cramping the rollers to the position to run the skate in a curve. These springs are united together by a cross-bar, B, which is directly below the ball of the foot, and a curved metal bar, C, extends from this bar to rudders, D, which form a part of the axles, so that as either spring is depressed, the curved bar, C, shifts the rudders so as to cramp the rollers.

The skater stands upon the springs which are strapped to his feet, and by simply leaning his weight to either side, he cramps the rollers and makes the curve.

In putting this skate together, nothing but rivets are used, so that it is almost impossible to break or otherwise get them out of order.

This skate will be more especially use-

ful where the skating floor is uneven, on account of the elasticity of the foot-support, upon the same principle that it is more pleasant to ride in a spring carriage than in a lumber wagon.

A patent for this skate has been granted, through the SCIENTIFIC PRESS Patent Agency, to Mr. John L. Boone, of this city, covering the employment of longitudinal side springs as a foot-support, and as a means of cramping the rollers, and to him all letters should be addressed. City, County, State and Rink rights for sale. All rights are guaranteed to be no infringement upon any existing patent.

The Medical Convention.

We are glad to see so much interest evinced in the meeting of the physicians in our city. Invitations from individuals and from associations, to eat, drink and be merry, to walk and ride, to visit and be visited, have been extended hospitably and freely. We think that our eastern friends will carry back pleasant memories of our coast. The convention is really a most important one. The American Association has existed now for many years and has attained the highest position and drawn into its ranks the best of medical talent.

lowed it by others about 1860. Soon after a number of French and English patents were taken out, one of the most noted of which was that of Edward Carré, of Paris. Although the principle of continuous action in artificial freezing has been known so long, yet on account of the many difficulties, especially the mechanical ones, the advance in the art of manufacturing ice in bulk has been very slow.

In speaking of this manufacture, we leave out of account the "frigorific" or freezing mixtures, as salt and snow, etc., etc., which are as numerous as the leaves of autumn, but are of no practical value except on the smallest scale. There are, then, but two methods in use. The first and most successful is by employing volatile liquids, which evaporate rapidly at low temperatures. The second is the rapid expansion of non-condensable gases, atmospheric air being the most common.

An example of the first method is the Carré process, alluded to above. In this, the volatile liquid is ammonia, which can be absorbed in large quantities in cold water and again expelled by heat. Although this principle required complicated, extensive and heavy machinery, yet after a long series of experiments and expenditures, this method has been improved so as to be now in successful operation in New Orleans.

The first to employ the expansion principle was, we believe, Dr. John Gorrie, of New Orleans, after whom came Kirk, of Scotland, and more recently Winhausen, of Germany. Their machines all employ atmospheric-air machines, which demand great power and consequent heavy expense.

It will be seen from the above brief remarks, that American inventors have just claims to priority in this matter. We are assured that California inventors are now the first to produce a most simple and inexpensive machine which manufactures the clearest and purest of ice at a very small cost. These inventors are Messrs. Martin & Beath, of this city. They claim in their latest improvements to have done away with the tin vessels which held the water to be converted into ice, and also the non-congealable fluid used in their first experiments. These were found objectionable; with every care, the ice produced carried a taint imparted by accidental contact with this fluid. By their present plan, the water to be frozen is the only water placed in the tank or refrigerator; the action is now direct, and such that the cost of a ton of ice is less than that of cutting and housing it on the ice-fields of the Pacific coast.

One of Messrs. Martin and Beath's ice machines has recently been built at Los Angeles, where it is now in successful operation. Another, capable of producing two tons daily, will be shipped this month to Honolulu. A third, of 25 tons daily capacity, is now being built and will be soon running in this city, on Stowart street, near Folsom, for the purpose of supplying San Francisco and vicinity. The small expense of constructing and working the machine enable the proprietors to proceed without resorting to the usual method of incorporation and subscription.

THE HEATHEN CHINEE.—One of the handsomest, neatest and most interesting publications which we have seen lately, is the pamphlet just issued by the publishers of the *Overland Monthly*. It is an admirable fac-simile of the original manuscript of the "Heathen Chinee," as written by F. Bret Harte, with all its interlineations and corrections, together with the letter-press copy as it appeared in the *Overland* of September, 1870, embellished with a capital likeness of the author. The lithographic execution is very fine. To possess a likeness of Bret Harte and a specimen of his handwriting, is surely enough to warrant the expenditure of 25 cents, the price of this publication. The little gem issues from the office of John H. Carmany & Co., 409 Washington street, and is for sale by all news-dealers.

GARDENING FOR PROFIT.—It is said that by good culture and repeated crops over \$350 has been taken from the product of a piece of ground only 40 feet square, cultivated with garlies.

We are glad to see the physicians of the coast enjoying a high position among their brethren; it redounds to our general credit.

Our city is now filled with medical men. At the hotels, on the streets, in the places of business, one sees our medical visitors, and is moderately safe in addressing any stranger with the title of doctor. Between two and three hundred are reported in attendance at the Convention. Of course a large number comes from this State, but the eastern visitors are in strong preponderance. We hope they will not confine their visits to the city and vicinity but will go to the other places of note and interest.

We give in another place a brief report of the proceedings,—all that we have space for.

Ice Refrigerating Machines—Claims of American Inventors.

The claims of American inventors for improvements in the manufacture of ice are not, perhaps, generally recognized in our country. The first patent of the kind accorded in England was that of Jacob Perkins, an American, in the year 1835. His patent related to the vaporization and condensation and continuous use and re-use of a volatile liquid,—not confined to any one liquid, but expressing a preference for ether. In 1850, A. C. Twining, of Ohio, patented in the United States and England an improvement in this machine, and fol-

DOMESTIC ECONOMY.

Fish as Food.

Fish meat affords better food for students and literary men than for those engaged in active or laborious manual labor. The common white-meated, slow-moving fish, such as cod, haddock, etc., contain about the same quantity of nitrates as beef or mutton, but more of the phosphates. The more active fish, such as trout, shad, etc., contain larger quantities of both nitrates and phosphates than beef or mutton—and this excess is just in proportion to the natural activity of the fish.

Nitrates and phosphates furnish food for the muscle and brain and give activity to the body and mind. Hence such food should be chosen for invalids and convalescents. Such fish, however, should be eaten with potatoes, or some farinaceous food to furnish the requisite carbonates, in which they are deficient.

There is a class of fishes, such as salmon, halibut, mackerel, etc., which are sometimes called oily fishes, which contain a large amount of carbonates, in the form of fat, and which are not easily digested; these are not suitable for invalids, but are very useful food for laboring men, or for old people, who need the fat to keep up the animal heat which they are losing by age.

Salted fish is far less nutritious than that which is eaten fresh; as the brine absorbs most of the albumen or nitrogenous principle, as well as most of the phosphates, both of which, as we have shown, are of great value in fish food, but not the fibrine, which goes to build up the muscles. Salt fish is therefore more suitable for laboring people, than for invalids or sedentary persons.

Fish, when properly prepared, and suitably selected, according to the condition of the system, furnishes an excellent article of food, and is quite readily digested, as will be noticed by reference to another article in this department to-day. Fish, however, should always be eaten as fresh as possible. An exposure to a hot sun, even for a single hour, greatly injures its character. Decomposition commences in fish flesh much sooner than in any other kind of flesh; and after it has commenced it becomes much more disgusting and poisonous than beef or mutton. Our medical correspondent of last week will excuse us for still insisting that decomposed food is poisonous to the human system, when taken into the stomach.

Vinegar.

What is a Good Article, and How to Use it.

Vinegar is sometimes the only spice, the only condiment of the poor, and for the sake of humanity, the trade as well as the government should do all in their power to procure for us good vinegar, made of wine. There should be no tax or duty on wine vinegar, and no other should be used, especially in a State where the vine flourishes as it does in California.

For the rich too, and the epicure it is an important matter to have good vinegar. Next to good oil, it is the principal constituent of a good salad. It is also indispensable in preparing sweet preserves, which should be more extensively used than they generally are. The *Fruit and Wine Reporter* in speaking of this condiment says: Good vinegar must be of a light yellow color, it must show a high degree of acidity without any empyreumatic flavor. It must have an agreeable odor, easily recognizable as that of acetic ether. The genuine wine vinegar, will not produce the feeling of roughness on the teeth when it is taken on the tongue.

On the liquor scale Baumé it marks 2.50 to 2.70, and is saturated with carbonate of soda, pure and very dry, at the rate of 6 to 7 per cent. of its specific weight.

Good vinegar is not, as it has been sometimes stated, a mere compound of acetic acid and water. With those two substances are combined the salts contained in the wine of which the vinegar is made. When distilled, it must give 1 to 1½ per cent. of alcohol. In brief, a mere compound of

acetic acid and water is no vinegar, any more than a compound of alcohol and water is brandy.

How to Test Vinegar.

A drop of good wine vinegar, when thrown on a piece of white paper, will, when evaporated, leave there no noticeable trace. But if the vinegar contains sulphuric acid, a dark spot will appear. Nitric acid still will leave no trace.

Blue paper is colored red by vinegar, but when drying, it changes gradually into violet; but if the vinegar contains any kind of mineral acids, the red color remains forever.

To examine a vinegar suspected not to be genuine, take a silver spoon, fill it with the vinegar, add a small bit of carbonate of soda, let it evaporate over a lamp, and if it, being calcinated, disengages an empyreumatic odor, (like tar) you may be assured that it contains extracts distilled from wood. However well those extracts may have been rectified, the above method will reliably indicate the presence of the substance, even if the vinegar contains only 5 per cent. of it.

What Shall We Eat?

Here are some of the common articles of food, showing the amount of nutriment contained and the time required for digestion:

	Time of digestion.	Am't of Nut'mt.
Apples raw.....	1 h 50 m	10 pr. ct.
Beans boiled.....	2 h 30 m	87 pr. ct.
Beef roasted.....	3 h 50 m	26 pr. ct.
Bread baked.....	3 h 30 m	80 pr. ct.
Butter.....	3 h 30 m	90 pr. ct.
Cabbages boiled.....	4 h 30 m	7 pr. ct.
Cucumbers raw.....	2 h 00 m	2 pr. ct.
Fish boiled.....	2 h 15 m	20 pr. ct.
Milk fresh.....	3 h 12 m	7 pr. ct.
Mutton roasted.....	2 h 15 m	30 pr. ct.
Pork roasted.....	3 h 45 m	24 pr. ct.
Poultry roasted.....	2 h 30 m	27 pr. ct.
Potatoes boiled.....	1 h 00 m	12 pr. ct.
Rice boiled.....	2 h 30 m	87 pr. ct.
Sugar.....	2 h 30 m	36 pr. ct.
Turnips boiled.....	4 h 00 m	4 pr. ct.
Veal roasted.....	4 h 00 m	25 pr. ct.
Venison boiled.....	1 h 30 m	25 pr. ct.

POTATO FLOUR.—Few persons in the United States are aware of the demand for farina, or potato flour, and of the almost unlimited extent of the market that can be found for this product, which is simply the dry, evaporated pulp of the ordinary potato, the whiter and more free from black specks the better. It is used for sizing and other manufacturing purposes, and with the aid of precipitation and acid is converted into starch. In Europe it meets a large and increasing demand, in its primitive state, as potato flour; and in Lancashire alone 20,000 tons are annually sold, and as many more would be taken if put into the market. When calcined it is used largely for silk dressing and other purposes.

Generally the quotation for potato farina in Liverpool is a little over 4 cents a pound, while wheat flour is about 2 1/6 cents a pound; so that the potato flour is nearly double that of the wheat at the present rate. Consignments to Liverpool are solicited by the brokers there, who promise to take all that can be furnished.

How To Eat.

An English magazine has brought to light a "manual on social etiquette," which was promulgated many years ago. We give an extract or two:

"Gentlewomen, the first thing you are to observe is, to keep your back straight, and do not lean your elbows on the table. Discover not by any ravenous gesture your angry appetite, nor fix your eyes too greedily on the meat before you as if you would devour more that way than your throat can swallow."

In another page: "Do not eat spoon-meat so hot that the tears stand in your eyes, or that thereby you betray your intolerable greediness. Do not bite your bread, but cut or break it, and keep not your knife always in your hand, for that is as unseemly as a gentleman who pretended to have as little a stomach as she had a mouth, and, therefore, would not swallow her peas by spoonfuls, but took them one by one, and cut them in two before she could eat them."

Gentlewomen are further instructed: "Fill not your mouth so full, that your cheeks shall swell like a pair of Scotch bagpipes."

Gentlewomen are also pleasantly put on their guard against the possible perpetration of certain minor misdemeanors: "You will show yourself too saucy by calling for sauce or any dainty things. Avoid smacking in your eating. Forbear putting both hands to your mouth at once; nor gnaw your meat, but cut it handsomely, and eat sparingly." The latter admonition is addressed to what the author styles "the female younger sort," but always gentleman born and bred.

Domestic Receipts.

GERMAN BISCUITS.—Beat the butter to a cream, and mix in the flour and the cream and the well beaten eggs, to form a nice, light dough; mix all well before kneading it; roll it in thin, long, narrow strips, flavor to taste, and bake on a tin in a quick oven.

RIBBON BISCUIT.—Mix butter, sugar, eggs, milk and nutmeg together, cut in ribbon shape, bake in a moderate oven.

PLAIN SUGAR BISCUIT. Dissolve the butter in the milk warm, stir it into the flour to make a firm paste, roll it out thin, and cut it with a tumbler, prick each biscuit and bake in a hot oven.

A LUNCHEON CAKE.—One pound of flour, four ounces of butter, six ounces of moist sugar, quarter of a pound of currants, quarter of a pound of stoned raisins, spices and candied peel to the taste; a teaspoonful of carbonate of soda, mixed in half a pint of cold milk, all to be mixed together into a paste; then put into an oven without being set to rise. It will take an hour and a half to bake.

WASH FOR CLEANSING SILVER AND BRITANNIA WARE.—Take one pound of common hard soap, three table-spoonfuls of spirits of turpentine, and half a tumbler of water. Allow the soap to dissolve; then boil ten minutes, and before it cools add six table-spoonfuls of spirits of hartshorn. Make a suds of this preparation, and wash the silver with it.

TO IRON VELVET RIBBON.—Dampen the under side slightly, and draw it backward and forward over a hot stove-pipe until the velvet is quite dry. A still better plan is to lay a wet piece of cotton cloth on a hot flat-iron placed upside-down, and while the steam is rising from it, to draw the under side of the velvet tightly backwards and forward over the cloth.

TO MAKE LEAVEN.—Stir corn meal in a pint of fresh buttermilk; add an old yeast cake dissolved in water; make it about the consistence of batter bread, and set in a warm place to rise. When well risen, add more meal, make it into cakes, and dry in the shade.

A USEFUL RECEIPT.—Rub four parts, by weight, of yolk of eggs, in a mortar with five parts of glycerine. This compound has the consistency of honey, is unctuous, like fatty substances, but is easily removed by water. Applied to the skin, it forms a varnish, which effectually prevents the action of air. It allays the itching in cutaneous actions. It is unalterable, and can be exposed to the air for an indefinite period.

Mechanical Hints.

TO UNITE WATER-PIPE.—An excellent material for uniting water-pipes is prepared by combining four parts of good Portland cement and one part of unslacked lime, mixed together in small portions in a ston mortar, adding enough water to permit it to be reduced to a soft paste. Pipes thus united have been in use more than six years without any leak.

A CEMENT TO STOP FLAWS OR CRACKS IN WOOD OF ANY KIND.—Put any quantity of fine sawdust of the same kind of wood into an earthen pan, and pour boiling water on it; stir it well, and let it remain a week or ten days, occasionally stirring it, then boil it for sometime, and it will be of consistence of pulp or paste; put it into a coarse cloth, and squeeze all the moisture from it. Keep for use, and when wanted, mix a sufficient quantity of thin glue to make it into a paste; rub it well into the cracks, or holes in your work with it. When quite hard and dry, clean the work off, and, if carefully done, you will scarcely discern the imperfection.

WHITE POLISH FOR LIGHT WOODS.—White (bleached) shellac, 3 oz.; white gum benzoin, 1 oz.; gum sandarac, ½ oz.; spirits of wine, or naphtha, 1 pint; dissolve.

APPLICATION FOR PREVENTING OXIDATION OF IRON.—The following composition is used for preventing the oxidation of iron, especially the bottoms of iron ships. Seventeen pounds of powdered sulphur, five pounds of the lye or caustic potash of thirty-five Baumé and one pound of copper filings, are to be heated together until the sulphur and copper have completely dissolved. During the process seven and a half hundred weight of tallow and one and a half hundred weight of turpentine are to be heated together in another vessel, until the tallow has completely disappeared. The two solutions are then to be carefully stirred together when hot, and applied immediately with a brush.

LIFE THOUGHTS.

He who has not forgiven an enemy, has never yet tasted one of the most sublime enjoyments of life.

HABIT is a cable. We weave threads of it every day, and at last we cannot break it.

He has hard work who has nothing to do.

BEAUTIFUL is that benevolence which works silently and in the shade.

Those who would go to Heaven when they die must begin Heaven while they live.

It is folly to expect to break off a habit in a day which may have been gathering strength in you for years.

MASTERS OF VICTORY.—The nerve that never relaxes, the eye which never blanches, the thought which never wanders; these are the masters of victory.

If we were only half as lenient to the living as we are to the memory of the dead, how much happiness might we render them and how much remorse might be spared, when the grave has closed over them.

Industry.

Man must have occupation, or be miserable. Toil is the price of sleep and appetite, of health and enjoyment. The very necessity which overcomes our natural sloth is a blessing. The whole world does not contain a brier or thorn which divine mercy could have spared. We are happier with the sterility, which we can overcome by industry, than we could have been with spontaneous plenty and unbounded profusion. The body and the mind are improved by the toil that fatigues them. The toil is a thousand times rewarded by the pleasure which it bestows. Its enjoyments are peculiar. No wealth can purchase them, no indolence can taste them. They flow from the exertions which they repay.

WHAT IS A MAN?—No man is a man till he is tried; till he has passed through the ordeal—through deep water and scorching fires. A man surrounded by comforts, friends and relations, food and raiment; whose barns are filled with plenty, and whose presses gush out with new wines; who eats his fill, sits and reads, doles about taking his ease and pleasure, smoking his pipe and chewing his cud; is he a man? Far from it. A man is not a man until he is proved—has passed the ordeal—drank the bitter cup; risen above life's conflicts; mounted the billows of the sea.

IMMORTALITY.—Turn whithersoever we will, we find the belief in immortality. In every nation ever known, in every race that has ever lived, in every age of this changing world we find it. Every language known to man, as now or heretofore spoken among babblers of this earth, is constructed in accordance with it. In all ages men dying have looked on death as simply the soul's putting off its tabernacle. There are exceptions, but they are so few that they hardly attract our attention, and do not destroy the practical accuracy of the statement. The belief in immortality is one of the universal convictions of the race.

LIFE.—It is not perhaps much thought of, but it is certainly a very important lesson, to learn how to enjoy ordinary life, and to be able to relish your being without the transport of some passion, or gratification of some appetite. For want of this capacity, the world is filled with whetters, tipplers, cutters, sippers, and all the numerous train of those who, for want of thinking, are forced to be ever exercising their sense of feeling or tasting.

THE HUMAN SOUL.—Is the light in the soul of a human being an incomprehensible electric spark that cannot be laid hold of, and which flashes up in resolve and act? So long as there is no storm in the sky we send at will the spark over the extended wire, but when the great, primitive forces of nature manifest themselves, the human message is no longer transmitted, and the sparks spontaneously play upon the conducting wires. Chaos sends forth an unintelligible message.

LIBERTY OF CONSCIENCE.—Condemn no man for not thinking as you think. Let everyone enjoy the free liberty of thinking for himself. Let every man use his own judgment, since every man must give an account of himself to God. Abhor every approach, in any kind of degree, to the spirit of persecution. If you can not reason or persuade a man into the truth, never attempt to force him into it. If love will not compel him to come, leave him to God, the judge of all.

Business Cards.

A NEW PATENT.

If you want a superior set of Texts on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all Dealers throughout the World.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Bombs, Fountains, Ovens, Grates, Ranges, &c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 2v21-3m

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 295 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 1v16-3m

WM. BASTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14f SAN FRANCISCO

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street.
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco, 25v19

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Bored and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

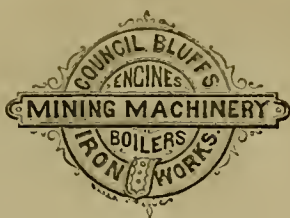
Capital, One Million Dollars.
LEVI STEVENS.....President.
B. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

DR. F. HILLER,
Homœopathic Physician and Surgeon.

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. ma4-6m

Eastern Advertisements.



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoss and Dies,
costing no more and wearing one half longer than any shoe before introduced.
Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late
Improvements.

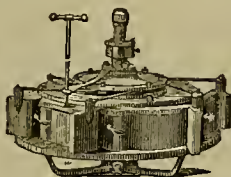
Send for prices and information. Address
C. F. HENDRIE, Pres't. R. J. CORY, Secy & Treas.
1v22-3m cww Council Bluffs Iowa.
(ESTABLISHED 1820.)

STOUT, MILLS & TEMPLE.

PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

Hydraulic
ENGINEERS,

Patentees
AND
Manufacturers

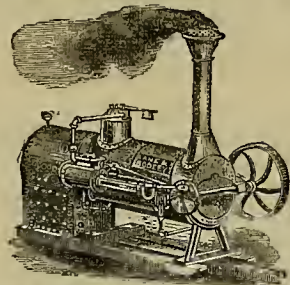


OF THE Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. mail-6m

LANE & BODLEY'S



PORTABLE STEAM ENGINES.

From eight to twenty-five horse power, adapted to Farm, Plantation, Saw and Grist Mill use.
OUR PORTABLE ENGINES excel in having capacious wrought iron Smoke Dome, with Man Head giving free access to the boiler, wrought iron Smoke Head, Lift and Force Pump, and for beauty of design and efficiency.
ALSO, Stationary Engines, Rollers, Saw Mills, Shafting and Wood-working Machinery.
AGENTS. Catalogues furnished on application.
W. L. Cushing, New Orleans
John P. Dale, Nashville, Ten.
G. S. Wornsey & Son, Detroit
LANE & BODLEY,
John & Water St. Cincinnati, O.

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

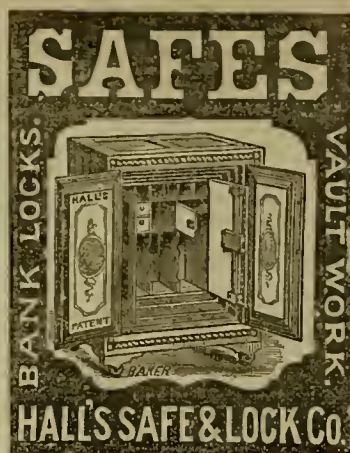
For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render all other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.
Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,

MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 AND 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? ma18-3m



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue. mail-6m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smut-terers, Corn Shellers, Flour Pack-ers, Homsy Mills, Baling, Picks and Mill Work generally.
SEND FOR DESCRIPTIVE PAM-PHLET.
ma-11w



ISAAC STRAUB & CO.,
Cincinnati, Ohio.

Substantial Success Based on Merit.

IRON WORLD AND MANUFACTURER

IS PUBLISHED WEEKLY AT

Pittsburgh, Pa.,

AND IS THE LEADING—IF NOT THE ONLY—REP-
RESENTATIVE JOURNAL OF THE METAL
TRADES PUBLISHED IN THE
UNITED STATES.

Located in the very centre of the metal interests of the United States, with offices and correspondents at the leading cities in the East, West and South, we do not err in claiming that it is the REPRESENTATIVE JOURNAL of the Metal Manufacturers, Workers and Dealers of this country.

THE IRON WORLD AND MANUFACTURER has a large and extended circulation throughout the United States, and is taken by Iron and Steel Manufacturers, Machinists, Founders, Hardware Dealers and Tanners, Gun-smiths, Plumbers, Cutlery Manufacturers, File Manu-facturers, Saw Manufacturers, Boiler Manufacturers, and by

Leading Railway Officials.

It advocates protection to American Manufacturers. Its markets are full and reliable. If you are a manu-facturer, take the journal that advocates your interests. Don't patronize Free Trade journals, but help those who help you.

With Free Trade the manufacturers of this country would be ruined. English gold is scattered with a liberal hand to further Free Trade. Expend some of yours to favor Protection.

If you advertise, which is the best medium? Circulation being equal, which would you patronize—a Free Trade journal or a Protection journal? Circulation is considered the value of an advertising medium. Much depends on the character of the circulation. The New York Weekly Tribune claims 200,000 circulation, and gets from two to five dollars per line for advertising. The Iron World reaches more people engaged in the metal business than the New York Tribune. Our rates are about ten cents per line. Which will pay the best?

Sample copies mailed Free. Address

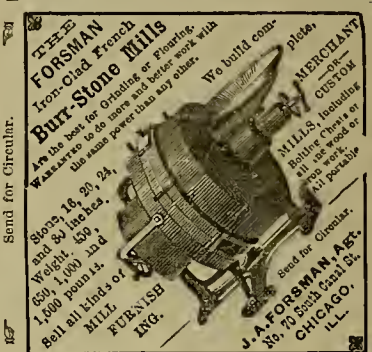
IRON WORLD PUBLISHING CO.,
No. 71 Grand street, Pittsburgh, Pa.

OWENS, LANE, DYER & CO.
MANUFACTURERS OF

The Eclipse Saw Mills,
Combining THREE PATENTED Improvements
Essential to The Well
Working of Circular Mills.

PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.

With the celebrated
STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.



Phoenixville Bridge Works

OF PENNSYLVANIA.

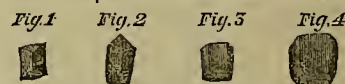
CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-1y

DICKINSON'S
Patent Shaped Diamond Carbon-Points.

Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truening up Hardened Steel, and for other mechanical purposes. Also Grinders' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and A Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

Improved Universal Wood Worker

for
Jointing, Babbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
MOBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mail-6m

The Illustrated Excelsior Magazine

Has been reduced from \$2.50 to \$1.00, and is now one of the CHEAPEST in the world. The illustrations alone are perhaps worth more than the cost, and the beautiful STEEL ENGRAVING of Evangeline (postage, etc., being sent) is given. Size of paper on which the steel engraving is printed is 2 feet by 19 inches. The Magazine contains Stories, Pictures, Puzzles, Music, a Lady's Department, with illustrations of ladies' patterns; a Youth's Department, etc., etc.

I hereby specially offer the Magazine for One Year also this splendid steel Engraving, for the regular subscription price, \$1.00 and 8 cents for postage and pack-
ing of engraving on rollers. Sample copy 10 cents. Address the Publisher, C. L. VAN ALLEN, 171 Broad-
way, New York. ma25-1f

The American Medical Association.

The event of the week in our city has been the meeting in council of physicians from all parts of our country. The occasion is one of the highest importance and interest, and we are happy to see that the arrangements for the reception of our visitors have been so excellent, and the hospitable spirit evinced by associations and private individuals so general.

On Monday the State Medical Society met at noon. The President, Dr. T. M. Logan, of Sacramento, whom all our readers know by reputation, and by his meteorological contributions to the Press, delivered an interesting address. The same day, the representatives of the medical press of the country met in editorial convention in the morning. The President is Dr. H. R. Storer, editor of the *Journal of the Gynecological Society of Boston*. Dr. H. Gibbons, Jr., was elected Secretary *pro tem*. That evening Dr. Storer delivered an able address on the "Reciprocal Relations of the Medical Profession, its Press, and the Community." It appears that last year the Society had 13 journals on its roll, that one of these has been since discontinued, and that 26 have joined this year; so that they have now 38 out of the 41 regular medical journals now existing in this country. The following officers were elected at the meeting: President, Dr. E. F. Dawson, of New York; Vice-President, Dr. H. Gibbons, Jr., of San Francisco; Secretary, Dr. F. H. Davis, of Chicago.

The American Medical Association, the grand central society, organized in Philadelphia, in 1847, held its 22d annual meeting on Tuesday, about two hundred medical gentlemen being present. The officers of this important association are as follows: President, Dr. Alfred Stille, of Pennsylvania; Vice-Presidents—Dr. J. S. Wetherley, of Alabama; Dr. Henry Gibbons, of California; Dr. G. J. Heard, of Texas; Dr. Samuel Willey, of Minnesota. Permanent Secretary, W. B. Atkinson, M. D. Philadelphia; Assistant Secretary, Dr. Joseph Tucker, of California; Treasurer, Dr. Caspar Wister, of Pennsylvania; Librarian, Dr. F. A. Ashford, of District of Columbia. At the meeting, Dr. A. Stout, of this city, delivered the address of welcome, and President Stille, the annual address. Then Dr. S. W. Ruschenberger, U. S. N., read a report "On Protest of National Surgeons, etc.," and other reports were received and deferred. Dr. Stille's address, touching on many important subjects, deserves a careful and thoughtful perusal.

On Wednesday the Association met again. The names of two hundred gentlemen were reported as delegates and permanent members. There was considerable discussion with regard to the standing of members. Several essays were read and received. Dr. Logan, of Sacramento, Chairman of Committee on Prize Essays, reported in favor of E. R. Taylor, of Sacramento (first prize), and B. Howard, of New York, (second prize).

On Thursday, various reports were received. There was quite a discussion on a motion not to exclude delegates from female colleges from the Association. The question was finally indefinitely postponed.

The following were elected officers of the Association: President, Dr. D. W. Yandell, of Kentucky; First Vice-President, Thos. M. Logan, of California; Second Vice-President, C. L. Ives, of Alabama; Third Vice-President, R. M. Mitchell, of Alabama; Fourth Vice-President, J. K. Bartlett, of Wisconsin; Assistant Secretary, D. Murray Chester; Librarian, F. A. Ashford, Philadelphia. The next place of meeting is to be Philadelphia.

The convention visited, after the meeting, the Toland Medical College. There we must leave them, as we go to press on Thursday night.

THE SUTRO TUNNEL.—Congress, during its last session, passed a wise measure deprecating that a commission should be appointed to examine and report on the Suto Tunnel, and that this commission should consist of two officers of the U. S. Engineer Corps, and of a mining engineer. Probably we could find no more just and impartial persons than officers of the army for such a commission, who justly have a high reputation in such matters. We see that the President has appointed two excellent officers on this commission, Lieutenant-Colonels Horatio G. Wright and John G. Foster. Capt. W. P. King will act as Secretary.

Academy of Sciences.

The regular meeting was held on Monday, Dr. Blake presiding and Mr. Bloomer acting as Secretary *pro tem*. J. Eastland and O. Livermore were proposed as resident members. Dr. Blake stated that the Trustees had decided to re-incorporate under the old constitution with a few amendments to suit the altered circumstances. Action in this matter will be taken at the next meeting.

Dr. Cooper presented some 50 specimens of shells, which went far to fill some of the gaps in the collection of the Academy. Mr. Hanks presented a sample of the vermilion paint used by the Indians of Inyo county. This, on chemical examination, proved to be hydrated sesquioxide of iron and silica, reduced to a very fine powder. Mr. Hanks had noticed painted rocks in Kern county, and Dr. Blake had seen colored hieroglyphics near Salt Lake, which evidently were very old, as the Indians now are unable to explain them. The retention of the vividness of color in these is noticeable.

Dr. Kellogg had sent to Prof. Gray, of Cambridge, Mass., a specimen of the *Dicentra uniflora*, illustrated on p. 142 of the Proceedings of the Academy for the last year, just published. Prof. Gray had endorsed it as a new species, which endorsement was a matter of gratification to members of the Academy. Dr. Kellogg presented a specimen of *Polyporus variegatus*.

In connection with the matter of Indian paints, it was remarked that the *Erythritum hirsutum*, which Indians of the coast use for its coloring properties, is called by them "puceon," the same name used by the Indians at the East for the blood-root. Dr. Cooper remarked that in Oregon the *trillium* was incorrectly called blood-root, although of a different family. There is no blood-root (*sanguinaria*) on this coast.

Dr. Blake showed a chart illustrating by curves the variations of the barometer as influenced by the moon. That the moon had any such influence, has been denied, but the chart gives evidence of the fact. The observations were made at Iowa Hill in 1855-6, and the oscillations were mapped out for October to March, and will be completed hereafter. On the first days of the moon the lines are pretty straight; on the 4th to the 6th day, there is a slight oscillation; on the 7th to 10th, rather more; the principal disturbance is from the 13th to the 16th day; 17th to 21st, very little; 21st to 23d, more; 27th and 28th, rather increased, and then getting calm after the first days again. At a lower altitude the oscillations would be more marked. The reason why the barometric changes do not exactly coincide with the phases of the moon is probably owing to the centers of disturbances taking place at different months, their effect not being perceptible at other places until some hours, or even days, after it has already been pointed out; for instance, a storm at the Sandwich Islands does not affect the barometer until two or three days after the occurrence.

Adjourned to Monday, May 8th, in view of the presence in the city of the National Medical Association.

ATMOSPHERIC PHENOMENON.—To the person walking westward yesterday morning about 10 o'clock, says the *Alta* of April 29th, in that direction which commanded a view of the sky near the horizon, an extraordinary spectacle was visible. Right in the quarter where old ocean ought to be rolling its billows against the Cliff, rose up the Contra Costa range of mountains, with venerable Diablo in the distance. The calm, placid waters of the Bay laved the brown shores. The illusion was perfect, even to the yellow patches on the hill side. One astonished citizen was observed rubbing his eyes, vainly trying to discover the meaning of this awful dance of the hills, doubtful as to whether the phenomenon was not referable to the condition of his stomach. A view from a point from which the Contra Costa shore could be seen, revealed the fact that it was all haze in that direction. Not a line of the landscape could be discovered anywhere. It was not the fairy Morgana who has been playing of late such fantastic tricks in the lower country, which got up this wonder, for old Diablo was not standing on his head at all; nor were his grand proportions exaggerated or distorted. The picture was in every respect true to nature. No one could look on it without at first thinking that Contra Costa had started out, in a most inexplicable manner, on a voyage to China.

Working Old Claims.

We find an item in the Virginia City *Enterprise*, of April 25th, to the effect that parties have been testing the ore of some of the old claims, on Carson Hill, located and partially worked in 1860-61, and found that it can be treated with profit. The prices of treatment and the mining and milling knowledge then were such that the ore would not pay, while now it can be made to give fair returns.

This is one item of the many of the kind which will gradually appear, and a most hopeful one it is. This re-locating abandoned claims and re-working of old ore is what must be extensively practised and will produce larger amounts of money. That it is now possible, is a sign of large progress made.

There is a possibility, however, of trouble in this matter. We fear that as soon as a claim shall have been proved to pay, parties will step in with claims of prior possession, and the mines become involved in distressing litigation. We need some general laws on this matter which will determine definitely the rights of miners and define when a claim has been legally abandoned. Litigation and stock gambling have been the curse of the mining industry on our coast.

COLUMBIA COLLEGE.—We have received the catalogue of Columbia College, New York, for the year 1870-71, being the 116th since its foundation. From this we learn that the total number of students is 782, divided as follows: School of Letters and Science, 120; School of Mines, 92; School of Law, 243; School of Medicine, 327. One item which strikes us particularly is the attendance at the School of Mines. The system of instruction in this School embraces five parallel courses; Civil Engineering, Mining Engineering, Metallurgy, Geology and Natural History, and Analytical and Applied Chemistry. The course of instruction occupies three years. This is undoubtedly the best appointed mining school in the country.

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 215970 shows that our patron has paid his subscription up to the 21st of September, 1870; 4172, that he has paid to the 4th of January, 1872; 410, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

W. H. MURRAY—Eastern States.
M. B. SPARR—Pacific Coast.
THOS. FOYER—California.
WM. J. CLARK—California.
S. H. HERRING—California.
L. P. MCCARTY—California.
E. P. HICKS—California.
A. O. KNOX, City Soliciting and Collecting Agent.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper, or blank slip, without the name and residence of the subscriber is a thoughtless act, and needless both to subscribe and publisher.

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-bp-tf

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla's' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chocory Mills, Bruges, Belgium. 1825-ly

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10, 18 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday except d	Express Train Daily.	MAY 1, 1871.	Express Train Daily.	Passenger Sundays excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:53 P.M.
7:58 P.M.	12:05 P.M.	San Jose.....	5:40 P.M.	
9:35 P.M.	12:15 P.M.	Stockton.....	1:43 P.M.	8:35 P.M.
	2:10 P.M.	Sacramento.....	11:15 A.M.	7:00 A.M.
	4:10 P.M.	Maravilla.....	9:30 A.M.	
	5:00 P.M.	Sosoma.....	4:20 A.M.	
	2:20 P.M.	Sacramento.....	11:45 A.M.	
	3:25 P.M.	Colfax.....	8:45 A.M.	
	1:15 A.M.	Reno.....	1:00 A.M.	
	9:10 A.M.	Winnemucca.....	4:05 A.M.	
	12:00 M.	Battle Mountain.....	1:25 P.M.	
	4:40 P.M.	Elko.....	8:45 A.M.	
	6:10 P.M.	Ogden.....	5:15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *5:50, 8:30, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:40, 5:15, 6:30, 8:30 and *11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).
LEAVE BROOKLYN, *5:15, *6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.

LEAVE OAKLAND, *5:25, *6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 5:20 and 10:20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00 and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only).
LEAVE HAYWARD, *4:30, 7:00 and 10:45 a. m., and 3:30 p. m.
LEAVE FRUIT VALE, *5:25, 7:55, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:20 p. m.

*Trains do not run Sundays.

T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'r and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

—is—
61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York,
WITHOUT CHANGE!
With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.
Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Ball and Boat connections in New York without change. Through tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago routes.
T. L. KIMBALL, Gen'l West. Pass. Agt.
Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent,
4v22-ly San Francisco, Cal.

Yosemite

—AND—

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

C. P. R. R. Office, 422 California Street.
O. P. R. R. Office, Oakland Wharf.
O. & N. W. Ry. Office, 445 California Street.
C. B. & M. R. R. Office, 414 Montgomery Street.
O. R. I. & P. R. R. Office, 208 Montgomery Street.
K. C. St. J. & C. B. R. R. Office, 306 Montgomery Street.

TO LEASE.

A VALUABLE MINING PROPERTY, consisting of a
Gold Quartz Mine,

A Twenty Stamp Water Mill, in good running order, Boarding House, Blacksmith Shop, Stable, Office, etc. The mine has been worked for fifteen years, thoroughly developed, and shows a large body of good ore. In the immediate vicinity are abundance of

Free Wood and Water,
From which the Mill is supplied. In consequence of the absence and detention of the owner, in the Eastern States, a favorable lease will be made to responsible parties on a rental per ton, or per month, for a term of one or two years. For further particulars address
A. K. GRIM, Agent,
No. 10 Express Building, San Francisco, Cal.

may6-2w

Scientific and Practical
BOOKS—ON—
MINING, METALLURGY, ETC.

BY GUIDO KUSTEL

MINING ENGINEER AND METALLURGIST.

Published and Sold by
DEWEY & CO.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his specialty.

Price \$2.50 coin, or \$3 currency, postage free.

For single copies of the above works, or for the trade, address

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office
San Francisco.

7-30 GOLD LOAN

OF THE

Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July last) is being pushed forward with great energy from both extremities of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 266 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September next this will be increased to at least 560.

A GOOD INVESTMENT. We are now selling, and unhesitatingly recommending, as a Profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 per cent. currency), and are secured by first and only mortgage on the ENTIRE ROAD AND ITS EQUIPMENTS, and also on

23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. The Bonds are issued by U. S. Tax, Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to the character of the first-class, prompt-paying Rail road security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.

SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed. The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their ample security and high rate of interest there is no investment so accessible to the people, which is more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 6 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.

OTHER SECURITIES—AGENCIES. All marketable Stocks and Bonds will be received at their highest current price in exchange for Northern Pacific Seven-Thirties. EXPRESS CHARGES ON Money or Bonds received, and on Seven-Thirties sent in return, will be paid by the Financial Agents. Applications for the sale of this loan are established in nearly every city and important town throughout the United States and Canada. Full information, maps, pamphlets, etc., can be obtained on application at any agency, or from the undersigned.

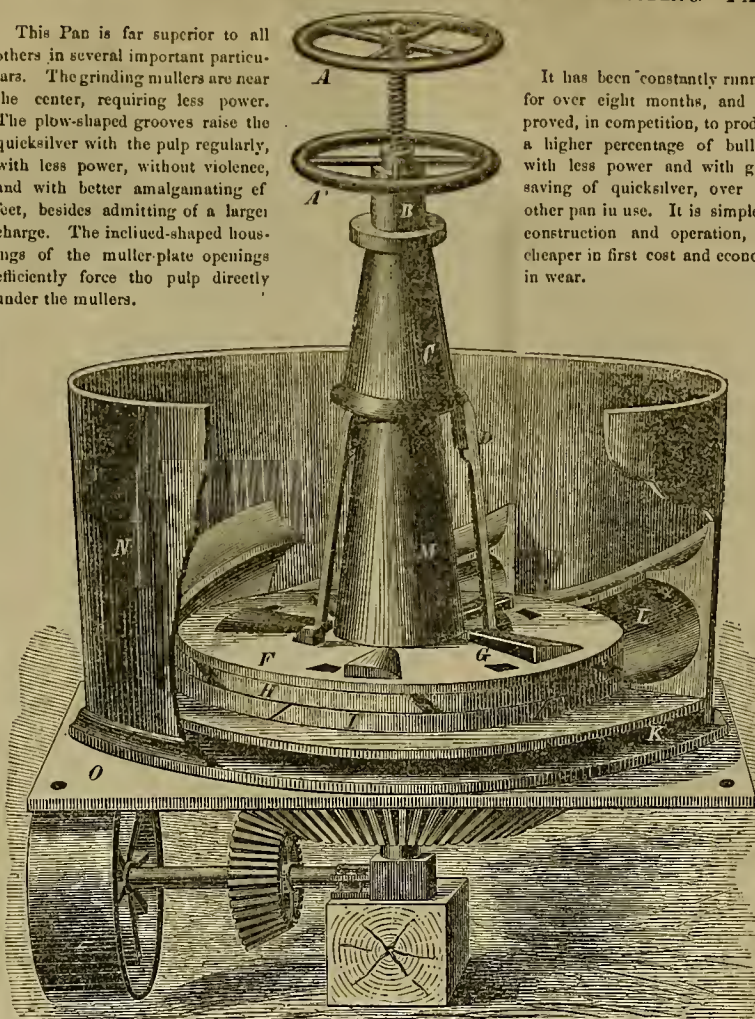
For Sale by

JAY COOKE & CO.,

Philadelphia, New York and Washington,
Financial Agents Northern Pacific Railroad Co.
By Banks and Bankers generally throughout the country.
MAR25-13t-cw

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

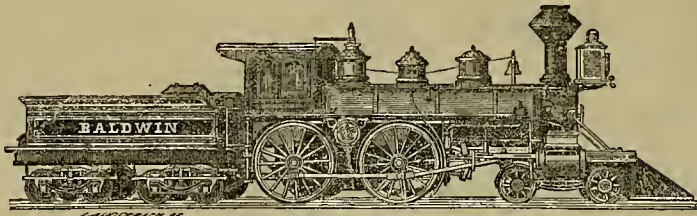
This Pan is far superior to all others in several important particulars. The grinding millers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the miller-plate openings efficiently force the pulp directly under the millers.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 15v20-1mr,1amt

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES.

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD,
GEO. BURNHAMCHAS. T. PARRY,
EDWARD H. WILLIAMS,WM. P. HENSLEY,
EDWARD LONOSTRETH.

WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal.

apl-10v20t



Travelers are always liable to sudden attacks of Dysentery and Cholera Morbus, and these occurring when absent from home, are very unpleasant. The PAIN KILLER may always be relied upon in such cases. As soon as you feel the symptoms, take one teaspoonful in a glass of new milk and molasses and a glass of hot water, stir well together and drink hot. Repeat the dose every hour until relieved. If the pains be severe, bathe the bowels and back with the medicine clear.

In cases of Asthma and Phthisis, take a teaspoonful in a glass of hot water sweetened well with molasses; also bathe the throat and stomach faithfully with the medicine, clear.

Dr. Sweet says it takes out the soreness in cases of bone-setting faster than anything he ever applied.

Fishermen, so often exposed to hurts by having their skin pierced with hooks, and fins of fish, can be relieved by bathing with the Pain Killer as soon as the accident occurs; in this way the anguish is soon abated; bathe as often as once in five minutes, say three or four times, and you will seldom have any trouble.

The bites and scratches of dogs and cats are soon cured by bathing with the Pain Killer clear. may6-1m

SALT LAKE CITY.—Chan, Reticker is agent in Salt Lake City and vicinity for the SCIENTIFIC PRESS and PACIFIC RURAL PRESS

Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CAYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer,

D. V. PHELPS,
San Leandro, Alameda County, Ca

al-ly-awhp

E. J. FRASER, M. D.,

SURGEON,

No. 108 Stockton street, S. F., Cal

THE OFFICE OF

"The Bureau of Mines and Mining Statistics
of the Pacific Coast"

IS LOCATED FOR THE PRESENT AT

No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the
Registry of Mines.

Parties desiring to communicate by letter, will obtain

Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,

Secretary of "Mining Bureau Pacific Coast,"

San Francisco, Cal.,

Care of Lock Box 406.

22v-18-tf

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S SAFETY CAPSULES are made by the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

MANUFACTURERS:—1, WHARF ROAD, CITY ROAD,
LONDON, AND BORDEAUX, FRANCE.

Mining and Other Companies.

Owing to the time necessary to mail the present huge edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Hanscom Copper Mining Company.—Lo-

cation, Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of five cents per share was levied upon the capital stock of said Company, payable on and after the 8th day of May, at the Secretary's office, 21 and 23 First Street, Office Golden State Iron Works, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 10th day of June, 1871, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

JAMES BIDDOLPH, Secretary,
Office Golden State Iron Works No. 21 and 23 First St.,
San Francisco.

Mauntauuk Silver Mining Company—

White Pine District, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of five cents per share was levied upon the capital stock of said Company, payable immediately, at the office of the Secretary, at the Company's office, 37 New Merchants' Exchange (third floor), in San Francisco. Any stock upon which said assessment shall remain unpaid on the 1st day of June, 1871, will be advertised on that day at public auction, and unless payment shall be made before, will be sold on the 15th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary,
Room 37, New Merchants' Exchange, San Francisco.

Mina Rica Mining Company—Location of

works, Auburn Mining District, Placer County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of twenty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 2, No. 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

GEO. R. SPINNEY, Secretary,
Office, Room No. 2, third floor, No. 418 California street,
San Francisco, Cal. 22v-17a5t

Noonday Silver Mining Company—Lo-

cation of works, White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of twenty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the Fifteenth day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

CHARLES E. ELLIOT, Secretary,
Office, Room 21, Hayward's Building, 419 California street,
San Francisco, Cal. apl5-5w

Taylor Mill and Mining Company—Lo-

cation of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of April, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of May, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 12th day of June, A. D. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

SAM'L S. MURPHY, Secretary,
Office, 520 Montgomery street, over Sather & Co.'s Bank
San Francisco, Cal. apl2-5w

Yosemite Consolidated Mining Company—

Location of works, Santa Fe District, Lander County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of April, 1871, an assessment (No. 4) of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 28 Merchants' Exchange, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-second day of May, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the nineteenth day of June, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees,

DAVID WILDER, Secretary,
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. apl3-1m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-q7

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. HANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,
MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

[Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.
Particular attention paid to Jobbing Work and
Repairs.

N.B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:
S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-q7

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERRECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; its lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

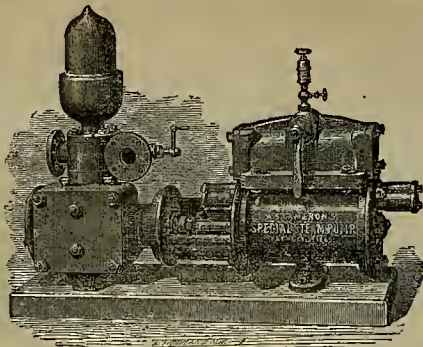
California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.

KEAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-q7

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.



PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting.
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention
The highest price paid for Scrap Iron 9v143m



RUSS PATENT
MONITOR MOLDING MACHINE,
MADE BY
R. BALL & CO., Worcester, Mass.,
Manufacturers of the latest Improved WOOL-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Fac-
tories, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14q

MACHINERY
—AT—
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

The Stetefeldt Furnace.

For information of any description respecting this
process,

APPLY TO
STETEFELDT FURNACE COMPANY.
Duncan's Building, Room 1, California Street,
San Francisco. 4v21-1y

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minn,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Boskots of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
necting of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED V. KINGWELL

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, 315 CALIFORNIA STREET, San Francisco.
25v20-3m

STEAM JET PUMP.
Blaklee & Williams' Patent—For
Water, Oils, Acids, Etc.



The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.
We ask the attention of all
proprietors of steam
power to the following
points of merit—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of
an engine; it will not choke
up with foul water; it costs
much less to put up and
start; it will not wear out
in a lifetime, or requires
repairs; it is reliable, and
certain to work at all times;
it is not liable to injury
from freezing.
Satisfaction guaranteed or
the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARGION, Stockton. Can be seen at
McAFEE, SEIERS & Co's, Boiler Works, S. F. 21v21-tf

For
Steam Pipes & Boilers
Hair Felting
Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

GEO. T. PRACY'S
MACHINE WORKS,
109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—
Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF
Steam Engines, and Mill Work Generally.

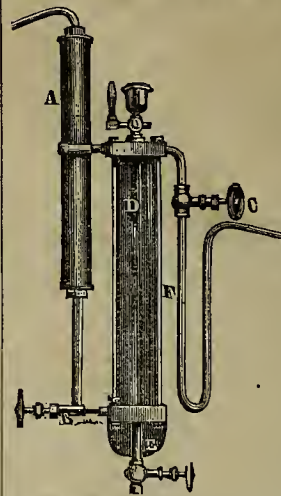
Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21



McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco
2v21-tf

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.

DESCRIPTION:—D, is a glass chamber which contains
the lubricant. O is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted syphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the injection
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and O. fcl8-tf

WHY THE WILSON
Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company gives a responsible guarantee
that the purchaser shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains,
from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and
repair enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbag," but call and investigate its
merits. Ours can always be seen at the Pacific Iron
Works.
Ten of these Mills are now in operation.
For further particulars address

FURMAN R. WILSON,
San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivalled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merit.
They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.
Settlers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.
Mill-men are invited to examine these pans and settlers
for themselves, at the office, 229 Fremont Street,
San Francisco.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolt- ing Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired, rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, Mills specially adapted for grinding Quartz.

41 First st., San Francisco.



from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen---Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at this

San Francisco Plating Works.

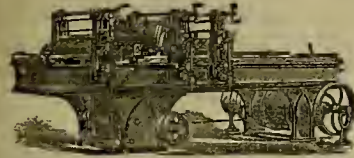
655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. O'NEAL, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. Best means yet discovered for saving fine particles of Gold.

20v21-tf

WOODWORTH PLANERS



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE, 112 and 114 California street, San Francisco.

The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST ELASTIC POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

JOHN F. LOHSE, Secretary.

Ahead of the World.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best,

Consequently the most Popular Machine in use. The Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,

ap15-3m No. 113 Kearny street, San Francisco.

Manganese ! Manganese !

We have on hand the Best and Purest article of Powdered Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper.

CYANIDE OF POTASS.

And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco.

22v-17-3m

Established 1843.

LOUIS ESPENSCHIED,

WAGON MANUFACTORY,

No. 1815 Broadway, St. Louis, Missouri.

3v22-6ms

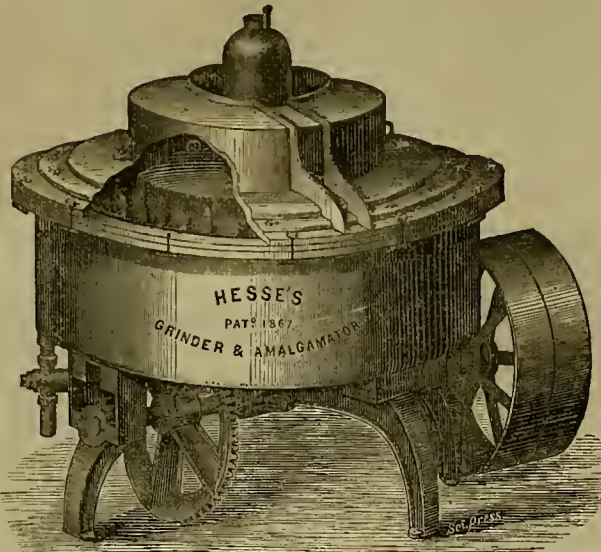
SONORA HOTEL,

T. BRODIGAN,.....Proprietor

Best Meals and Beds in Sonora, Cal.

fe25-3m

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

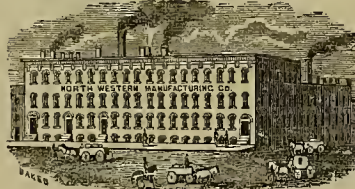
this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

LORD & PETERS,

304 Battery street, San Francisco, Cal.

NORTH-WESTERN MANUFACTURING COMPANY

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,

Brass and Iron Goods for Steam and Gas Fitters and Engine Builders

Cast Iron and Malleable Iron Fittings and Castings.

Steam Warming and Ventilating apparatus for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

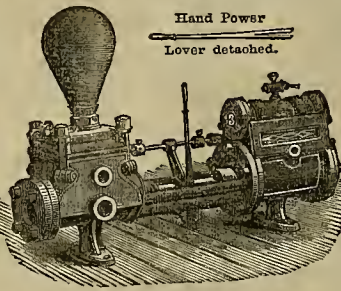
R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indubitably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by BERRY & PLACE, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET.

One door west of Montgomery.

H. H. LAWRENCE,.....Manager.
J. A. MARS,.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v2c

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St., up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

NEVADA METALLURGICAL WORKS-

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 22v18tf

To the Public.

THE PACIFIC STONE COMPANY,

SITUATED AT THE CORNER OF,

Turk and Larkin Streets,

IS NOW IN OPERATION AND MANUFACTURING, UNDER THE Ransom Patents, the most perfect SANDSTONE, specimens of which may be seen in the ornamentation of Dr. Stone's Church, now in course of erection, at the corner of Post and Mason streets. For architectural, ornamental and mechanical purposes, this stone surpasses all natural stone of its class.

GRINDSTONES from this factory, which we make of any desired size, may be seen at many of the great mechanical shops in this city, where they are held in high esteem.

The factory is now turning out Architectural Stone, Cemetery Stone, Grindstones, Garden Ornaments, in the way of Vases, Fountains, etc. The nature of the art admits of our moulding the stones in any desirable form, and enables us to compete successfully with all natural stone wrought by hand. In England, where the stone has been manufactured largely for the past fifteen years, it is considered, for durability and strength, to surpass the best English Sandstone. The British Government employs it largely in its public buildings, both at home and in its Colonies; and as we have secured the services of MR. ERNEST L. RANSOM, late Superintendent of the home works at Greenwich, England, we are turning out stone fully equal to the English standard.

Particulars, apply at the Factory, corner Turk and Larkin streets. mal8-tf.

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$2.50

PURELY MUTUAL.....Interest, 6 per cent. per year

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. O. MORTON, Treasurer; H. B. CONGDON, Secretary. apl-3m.

To Inventors in the Pacific States.

The best, speediest, and surest method for you to obtain patents, file caveats, or transact any other important business with the Patent Office at Washington, or with foreign countries, is through the agency of DEWEY & CO., PUBLISHERS OF THE SCIENTIFIC PRESS, SAN FRANCISCO, an able, responsible, and long-established firm, and the principal agents on this side of the continent. They refer to the thousands of inventors who have patronized them, and to all prominent business men of the Pacific Coast, who are more or less familiar with their reputation as straightforward journalists and patent solicitors and counsellors.

We not only more readily apprehend the points and secure much more fully and quickly the patents for our home inventors, but with the influence of our carefully read and extensively circulated journals, we are enabled to illustrate the intrinsic merits of their patents, and secure a due reward to the inventor, besides serving the public who are more ready to give a fair trial, and adopt a good thing, upon the recommendation of honest and intelligent publishers.

To Obtain a Patent,

A well-constructed model is generally first needed, if the invention can well be illustrated. It must not exceed 12 inches in length or height. When practicable, a smaller model is even more desirable. Paint or engrave the name of the article, and the name of the inventor, and his address upon it. Send the model (by express or other reliable conveyance), plainly addressed, to "DEWEY & CO., SCIENTIFIC PRESS OFFICE SAN FRANCISCO." At the same time, send a full description, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operations.

Also send \$15 currency, amount of first fee of the Government. The case will be placed on our regular file, the drawings executed, and the documents made up, and soon sent to the inventor for signing.

As soon as signed and returned to us with the fees then due us, it will be sent straightway to the Patent Office at Washington.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case, the applicant has only to send us an exact description, and what is desirable to claim.

For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances for design patents two photographs, with the negative, answer well instead of drawings.

We do not require the personal attendance of the inventor, unless the invention is one of great complication. Usually the business can be well done by correspondence.

For filing a caveat, which affords the inventor protection for one year, we only require a rough sketch, and a clear description of the invention.

It will cost inventors less to have their business thoroughly and speedily done through our agency than to patronize less able and responsible agents.

For further information, send a stamp for our illustrated circular, containing a digest of PATENT LAWS 112 illustrated mechanical movements and HINTS and INSTRUCTIONS regarding the RIGHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAWS of 1870.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Scientific Press and the Pacific Rural Press, San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. O. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city.
fe18-16p-tf

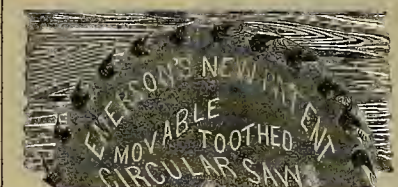
CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.
MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.
Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BROS. & CO. and LIPPENCOTT & CO.
Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

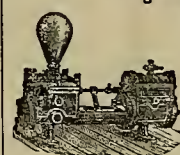
BAIRD'S BOOKS

FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Francisco.
4v22

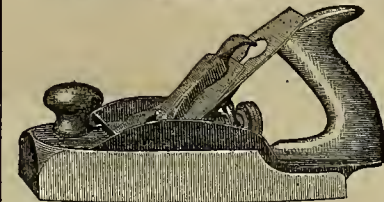
BAILEY'S PATENT ADJUSTABLE PLANES.

Over 6,500 Planes Sold in 1870.

Every Carpenter, Cabinet-maker, Car-builder, or other skilled Wood Worker, will find it economy to use these Planes.



"The BEST PLANE now in use." CHICKERING & Sons,
Piano Forte Manufacturers, Boston.
"Superior to any others used in this shop." W. S. Town, Master of Car Repairs, Hudson River R. R. Co.



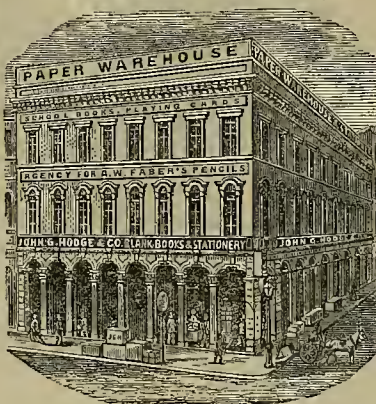
"Works splendidly on our Yellow Pine."
H. C. HALL, Jacksonville, Florida.
"We have Bailey's Planes in our factory, and there is but one opinion about them—they are the best and cheapest tool we have ever used. Good tools are always the cheapest." JOSEPH BECKHART,
Carriage Builder, 1204 Frankford Road, Phil'a.

Manufactured by the STANLEY RULE & LEVEL CO., New Britain, Conn. Warehouse, 66 Chambers street, N. Y. Sold by all Hardware Dealers. Send for Descriptive Catalogue, embracing a full assortment of both the Iron and Wood Planes.
ap22-3w

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS,



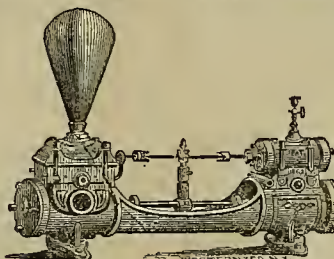
KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and Cartridge Papers, &c., &c

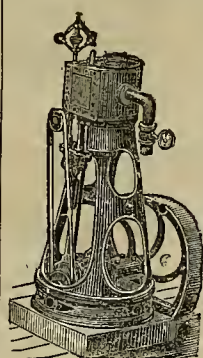
Blank Books made to order from Crew Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St. [San Francisco.
19v21comly

A. L. FISH, Agent, KNOWLES' PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p



RIDER'S Automatic Cut-off Vertical Engines

Manufactured by the Albany St. Iron Works, NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDBEN & RIPLEY, Corner Albany and Washington Sts., New York.
26v20-1y16p

MAGAZINES.	P. An.
Harpers'.....	\$4 00
Atlantic.....	
Godley.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	
Peterson's.....	3 00
Arthur.....	
Lady's Friend.....	
Harpers' Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
London Ill. News.....	15 00

HALLIDIE'S Endless Wire Rope-Way,

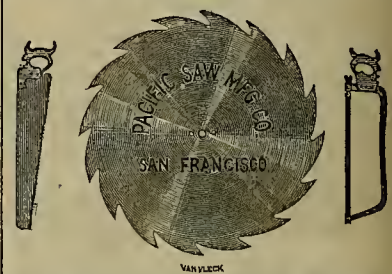
For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH, Civil and Mechanical Engineer,
619 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office.
fe18-tf-16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS,
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired, Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING, Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

SPAULDING'S Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLER RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

Pacific Insurance Company
No. 222 California St.,
San Francisco
Cash Assets \$1750,000.
Fire and Marine Insurance.

J. HUNT, President. A. J. RALSTON, Secretary
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

OCCIDENTAL Insurance Company OF SAN FRANCISCO.

ash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

O. J. KING, B. KIMBALL, P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 13, 1871.

VOLUME XXII.
Number 19.

The Eureka Lubricator.

This lubricator, the invention of a gentleman in this city, although of recent date, is coming rapidly into favor on account of the excellent reports of its economy and value given by those who have used it.

The construction is simple. *B* is the steam pipe from the boiler, and *C* the cylinder. The condensing pipe, *A*, (provided with a valve, *L*), admits steam (which it condenses) into the reservoir, *D*, whence, as water, it is allowed to pass into the cup, *F*, below the oil, *X* being the feed valve to regulate its flow. The cup is filled at *N*. The discharge pipe, *E*, conveys the oil to the steam pipe, *B*, being provided with a check valve next to the cup (to keep steam out of the cup), and with a valve, *G*, to shut off the supply of oil when the engine is stopped. The principle is that the condensing pipe being above the discharge pipe and containing a column of water, there is a pressure to force the oil out of the cup into the steam pipe. There is thus obtained a constant oiling, the amount being regulated by the proper valves.

This supply is not left to be guessed at. Attached to, and connecting with, the cup, *F*, is a glass tube, *J*, so that the amount of oil in the cup is seen. *P* and *H* are stop cocks, and *O* is a cock to clean the tube. Attached to this tube is a sliding gauge, *K*, by means of which the amount of oil consumed is shown.

There is nothing which passes the feed valve except pure, condensed water, which is forced under the oil by the pressure of the column of water in the condensing pipe; this allows the oil to flow out of the discharge pipe of its own accord, without the oil itself being regulated. The condensed water will not choke the valve, and will pass through a very fine opening for a long time, and thus the choking up of the passages, which occurs with oil or tallow, is avoided. When the oil is introduced into the steam pipe, it is converted into greasy steam, and as it is fed constantly, but little is required. The engineer, by means of the tube, *J*, and gauge, *K*, sees just how much oil is in the cup, and how fast it is being used. Thus he is enabled to have full control of the oil and to economize in material, in the wear and tear of the engine, and in his time and labor.

The lubricator is suitable for any engine. The cup may be placed in any convenient place. The oil should be discharged, in all cases, in the steam pipe above the valves.

The perpendicular pipe in the reservoir must be not less than ten inches above the discharge pipe, and as much higher as convenient. When too high, it requires the feed too fine; and when too low, there is not pressure enough to force the oil out of the cup. It takes three inches of water above the check-valve to balance it. The best height is one foot above the reservoir.

It was patented February 14th, 1871, by Mr. N. Seibert, whom address care California Brass Works, 125 First street, San Francisco.

Mechanics' Institute—Eighth Industrial Exhibition.

The Board of Managers are really making surprising efforts. In addition to what

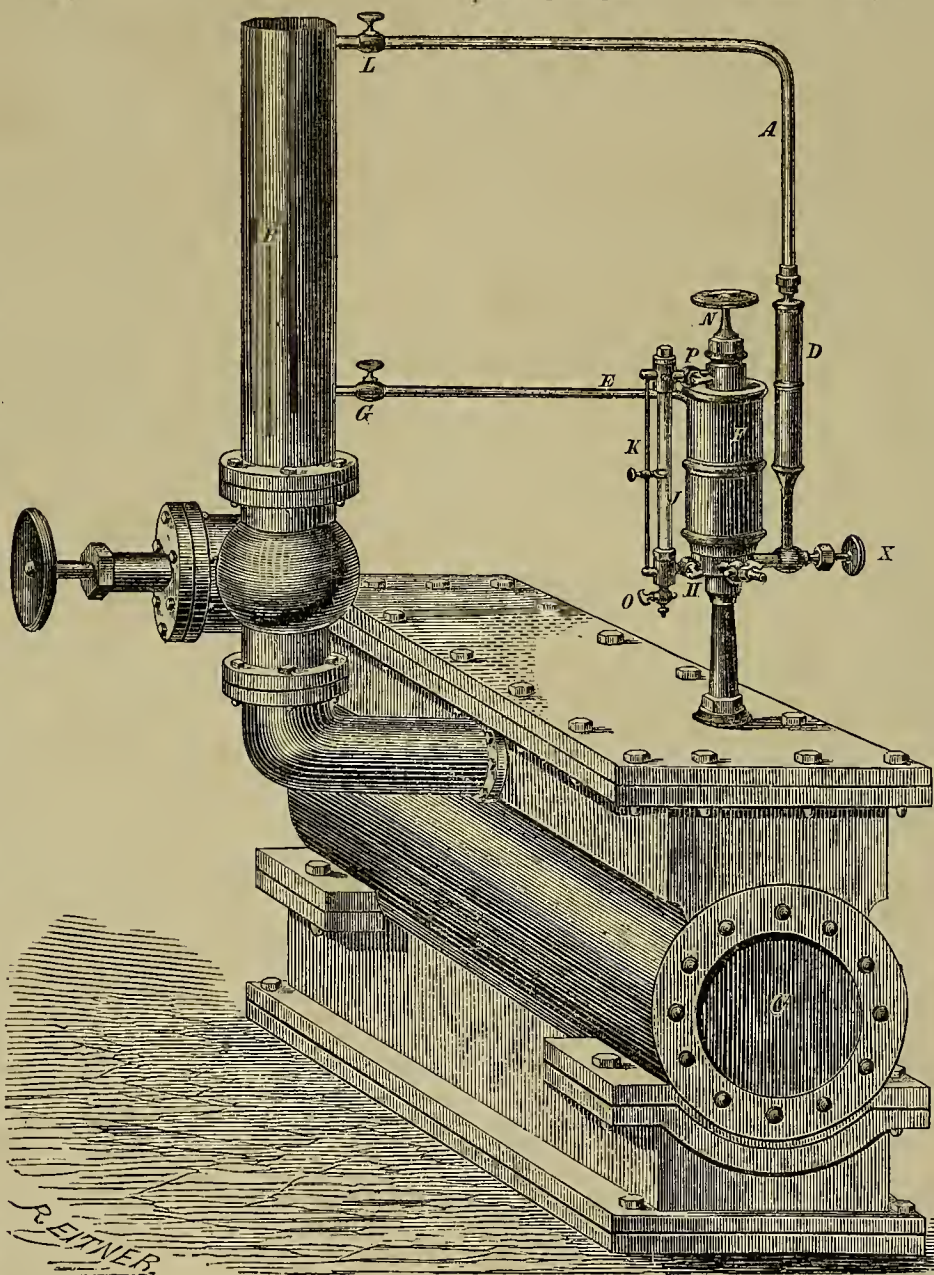
Drawing; Still Life Drawing; Maps. The pupils who may compete, will be divided into three grades, ages being as follows: Grade A,—boys, 18 to 16 years; girls, 16 to 14 years. Grade B,—boys, 16 to 14; girls, 14 to 12. Grade C,—boys, 14 years and under; girls, 12 years and under. It appears from this that the boys are given the advantage of two years in age, which, although said to be the usual thing, we cannot really see the fairness of. A first (silver medal) and second premium (bronze medal) will be awarded to each class and grade. The classification does not include oil or water color.

In addition, the following premiums will be awarded by the Mechanics' Institute to regular attendants of Evening Public Schools: A set of drawing instruments (worth \$75) and \$50 in coin (added by the President, Mr. Hallidie) for the best architectural or mechanical drawing from a design or model, not a copy of a drawing; silver medal for best and bronze medal for second best mechanical drawing; do. for architectural drawing. Notice of intention to compete in all the above cases to be given before July 25th, and drawings to be in position before August 8th.

We hope the boys and girls will enter in strong numbers into the competitive lists. The collection of drawings will certainly be not the least interesting one of the Exhibition. In conclusion, we cannot refrain from again complimenting the Board of Managers for their most praiseworthy efforts to make the coming Exhibition a complete one in all respects.

PATENT TO A PLACER MINING CLAIM.—The first patent, perhaps, that has been issued to a placer mining claim under the act of July 9th, 1870, says the Sacramento Union, was received by the Register of the United States Land Office at Sacramento, on the 13th ult. This patent was received in exactly seven months from the date of the notice of intention to apply for a patent, which, having been published three months, and in view of the forms necessary to put the law in operation, shows considerable dispatch. It is to be hoped, however, that greater dispatch will be found possible hereafter.

STEAMBOAT SPRINGS, NEVADA.—The *Territorial Enterprise*, of April 30th, states that, according to information received, a surprising change had occurred at Steamboat Springs. The springs had suddenly dried up, and no steam or water was issuing as before. The statement, if true, is most interesting and important.



SEIBERT'S PATENT EUREKA LUBRICATOR.

Lard, castor, sea elephant and walrus oils are the best for use.

We need not dilate on the advantage of oiling constantly and on the other points of this lubricator. It has been in use in this city and elsewhere, in establishments of various kinds, gives the best of satisfaction, and saves, by a table given us, all the way from \$5 to \$39 per month in oil, to say nothing of other respects, over the cups

we have already noted, we learn from a circular, received this week, that the boys and girls are not to be forgotten. With a view to promote the study of drawing in the public schools, they now offer thirty-six silver and bronze medals to be competed for by the school children, for drawings which are divided into six classes, viz.: Mechanical Drawings and Designs; Architectural do.; Landscape Drawing; Marine

ever, that greater dispatch will be found possible hereafter.

MECHANICAL PROGRESS.

EFFECT OF THE COAL TROUBLE.—The following is from the argument of President Gowen of the Reading Railroad Co. before the Judiciary Committee of the Pennsylvania Legislature:—"The effect on the coal trade has resulted in a diversion of at least 2,000,000 tons of coal per annum from the anthracite trade, which it will never recover. Upon the iron trade the effect has been such as to seriously threaten the removal of the whole iron producing interest from Eastern Pennsylvania to the South and West. No better protection can be offered the English iron trade than the action of the Workmen's Benevolent Association. In the last sixty days more orders have left the country for Scotch Pig Iron than were sent in all last year. The effects upon the men themselves are even more disastrous."

The Iron Age of April 27th has the following:—"The effects of the strike in the anthracite coal regions are becoming quite serious. A dispatch from Scranton says: Thirty four blast furnaces have been compelled to suspend operations between Mauch Chunk and New York. One of the two furnaces of the L. I. and C. Co., in this city, has already blown out, and the other is now going out of blast, while the fires of the great rolling mills, too, have gone out. Silence and desolation now reign where but a few days ago all was industry and prosperity. Scores of the busy, industrious iron workers, who see no prospect in the future, are already leaving, while many others are preparing to leave as soon as possible. Thirteen hundred additional workmen are thus thrown out of employment."

THE FLUO-TITANIC PROCESS.—Prof. C. P. Williams, in the *American Exchange and Review* for April, thus remarks upon this steel-making process: "It consists essentially in mixing powdered titaniferous iron ore with calcic-fluoride (fluor spar), and charging this mixture upon the sole of the furnace. Gray pig-iron being then added, reactions are set up between the fluor spar and the titaniferous ore on the one hand, and the silicon, carbon, sulphur and phosphorus of the pig-iron on the other. The silicon is removed at an early stage of the process—at least such are stated to be the indications of rigid chemical analyses—and the carbon is changed from the graphitic into the combined form. Now, as it is claimed by some metallurgists that sulphur and phosphorus cannot be removed till all the silicon has become eliminated, and as the reaction of fluorine is always in this latter direction, it would seem that the practical realization of the long-desired production of sulphur and phosphorus free iron was at length to be brought about by the employment of areagent which, though not new to metallurgy, is certainly a novelty in the iron furnace. The old oxygen method of removing silicon is in this process combined with, in this respect, the still more powerful fluorine reactions. There is this further advantage, that, in the earlier stages of the new process, there is no waste of the iron scoriification, "as the silicon and phosphorus pass off in the form of vapor, and the only loss of weight attending the operation at this period is the weight of the silicon and phosphorus. Experiments made with the new process in crucibles, to produce steel and wrought iron (at temperatures 1,000° higher than in the puddling furnace used for the large experiments), have yielded considerably greater weight of wrought-iron than the weight of the pig-iron used. These gains are due to the reduction of the iron, in the oxide to the metallic state, and its incorporation with the rest of the metal."

IRON SHIP-BUILDING IN AMERICA.—"On April 15, there was launched from the yard of the Pennsylvania Iron Works, at Chester, Pa., an iron screw steamer, the City of Houston, of 1,600 tons burthen, designed for traffic between New York City and Galveston. It is claimed for this vessel that in strength, beauty of model, and finish of workmanship she cannot be excelled by any of her class and tonnage afloat. Her length on deck is 228 feet; breadth of beam, 33 feet; and depth of hold, 21 feet; and she has an estimated light-load draught of less than 8 feet. Her machinery will be driven by a single overhead engine, with a 48-inch cylinder and 4 feet stroke of piston. The surface condenser contains 2,130 5-8ths tubes of 4 feet length. The boilers are two, of the return flue variety, and together have a heating

surface of 4,532 square feet. The propeller has a diameter of 13 feet. Although not of the largest size, this vessel, in its successful building in one of our own yards, shows, as others have done before it, that first-class work at paying rates can be done even under the discouraging conditions that now attend American ship-building."—*Am. Artisan*, April 26th.

INDIA RUBBER SPONGE.—The *Manufacturer and Builder* for May describes the new article made in New York:—"To render the rubber porous, some substance like sugar, common salt, or other solid soluble in water is mixed with the gum before vulcanization, the quantity, of course, determining the grade of the sponge. Each particle of the sugar or salt is, of course, enveloped more or less in a film of rubber. By proper working by the usual rolls and rubber-mixing machines, the whole forms a perfectly solid mass. It then goes to the vulcanizing oven, where the proper heating is given. The mass comes from the oven perfectly solid, and no more porous than an ordinary rubber spring. The salt or sugar is then removed by washing and kneading, which leaves the rubber in the form of a sponge. The porous condition produced in this manner differs very much from that produced by the alum or carbonic acid process. In the latter, there is a constant tendency to produce little balloons of rubber, with walls extremely thin. In the former process the cells are in free communication with each other, the material appearing more in the form of threads, grains, and perforated walls, with free passages in all directions. This remarkable product has the property of retaining heat to a great degree. For applications of hot water, it can be used in any position. It being free from grit, it can be used for the most delicate purposes—for the toilet and the bath, for cleaning carriages, for hat brushes, for cleaning kid gloves, pictures, or drawings, for lithographer's use, and for all purposes for which the natural sponge is used; and, as it can be made of any degree of fineness, any form, size, or color, and is unaffected by acids, for many purposes where the natural sponge cannot be used."

SPEED ON DIFFERENT RAILWAY GAUGES. The following is clipped from a circular recently published by Baird & Co., of the Baldwin Locomotive Works, Phila., and condensed by the *Chicago Railway Review*. "A narrow gauge locomotive with driving wheels 36 in. diam. and cylinders with 16 in. stroke, at 36 m. per hour, develops the same speed of piston as a full gauge loco. with 5 ft. driving wheels, and cylinders 24 in. stroke, at 40 m. per hour. With driving wheels 40 in. diam. and 16 in. stroke of piston, the narrow gauge locomotive develops the same total travel of piston per mile as does the full gauge locom. with driving wheels 60 in. diam. and 24 in. stroke. Equal speeds are therefore attainable on the narrow and the full gauge. The angle of stability of the narrow gauge loco. with 3 ft. driving wheel is somewhat greater than that of the 4 ft. 8½ gauge locomotive with 5 ft. driving wheel."

A PRETTY CONCEIT AND PRACTICAL HINT. A curious and beautiful effect was produced by one of the ice-making machines built by J. P. Morris & Co. of Philadelphia, lately, which excited the admiration of all who saw the specimen. This was a cake of manufactured ice, in the centre of which, completely enclosed by the translucent material, was a bouquet of fresh flowers. Every leaf and flower was perfectly visible while the brilliancy of the colors was enhanced by the refraction through the ice. This specimen was produced by the Carre-Ammonia process, under which these machines are operated. It was presented to the Hon. Marshall P. Wilder of Boston, who had delivered a lecture upon the fruits and flowers of the Pacific coast, before the Philadelphia Horticultural Society. Beyond the beauty of the spectacle there lies a practical use to which this process may be applied, which will result in the preparation of fruits and provisions for transportation from a distance.—*Iron Age*, April 27th.

ELASTIC IRON RAILWAY TRACK.—Mr. John E. Lowe, of London, has invented an iron sleeper in which elasticity is sought by sustaining the rail on a plate or clip of wrought iron or steel which is cast into the sleeper over a trough-like hollow, and forms an elastic bridge seven or eight inches long, on which the rail rests.—*Railroad Gazette*.

SCIENTIFIC PROGRESS.

THE EOCENE BEDS OF UTAH.—T. A. Conrad contributes a note upon this subject to *Silliman's Journal* for May. We quote:—"I am indebted to Prof. Cope for an opportunity to examine some Eocene fossil shells, collected at Aspen station, and at Quaking Asp Ridge, east of Bear river, Utah, at an elevation of 7,100 feet. These fossils were taken from the rock in which they were imbedded, by Lucius C. Ricksecker, engineer on the Pacific Railroad. * * The fossils are especially interesting in consequence of the light they cast on the condition of the globe in the earliest Eocene period. * * The hydrography of this early Tertiary era may be imagined from the foregoing statement to have been a river system analogous to that of Brazil at the present time. The presence of vast numbers of estuary shells forbids us to suppose that the group inhabited lakes rather than rivers, which rose in not greatly elevated hills, for mountains, except as isolated peaks, had hardly been developed at this period, when the great basin of Utah was submerged, and the Mississippi valley and its rivers were not yet formed, but the general drainage was into the Pacific ocean. There was then a system of great rivers and a densely wooded country eminently fitted for land animals, whose remains I have no doubt are to be found, if they have not been already obtained. The elevation of this vast region to any considerable height took place in the first stage of the Eocene era, and if we are surprised at the great extent of such brackish water rivers, we have only to glance at a similar river system 2,200 miles up the Amazon. By the rise of the Cretaceous formation, this condition of the country was formed, and as no transition beds are known, the advent of new genera and species so different from what had lived before is an unexplained phenomenon in the geological history of the globe. So far in Europe, I believe, no authentic account has been published of any fossiliferous beds between the lower Eocene and the Cretaceous strata, that would indicate a transition period to have intervened. And so in Utah, Idaho and Wyoming, the remarkable condition is apparent, as it is in the Eastern States, in England, France, Spain, India, on the banks of the Nile and in South America, which proves that the revolution which closed the Cretaceous era was co-extensive with the globe and destroyed the life of the period."

LEGS OF THE TRILOBITE.—Prof. Dana, in the May number of the *Am. Journal of Sci. and Arts* describes the specimen belonging to the Canadian Geological Museum, which has been supposed to show remains of legs. On account of the doubts upon the point, it was sent to him for examination, although decided upon in the affirmative by the Geological Society of London. Both Prof. Dana and Prof. Verill carefully considered it, separately and together, and arrived independently at a conclusion in the negative. Their opinion is published at the request of Mr. Billings, of Montreal, the sender of the specimen. We quote briefly:—"The conclusion to which we have come is that the organs are not legs, but the semi-calcified arches in the membrane of the ventral surface to which the foliaceous appendages, or legs, were attached. Just such arches exist in the ventral surface of the abdomen of the Macrura, and to them the abdominal appendages are articulated. This conclusion is sustained by the observation that in one part of the venter three consecutive parallel arches are distinctly connected by the intervening outer membrane of the venter, showing that the arches were plainly in the membrane, as only a calcified portion of it, and were not members moving free above it."

"TIMBRE."—Professor Helmholtz has published a work upon physiological acoustics and the principles of music, which, according to Sedley Taylor,—who notices it in *Nature*,—has practically revolutionized that branch of science. We quote a short paragraph from the notice, in relation to the subject named in the heading of this item:—"He begins by completely clearing up the nature of the quality (timbre) of musical sounds. He

fixes his reader's attention on the harmonics which previous observers had recognised as accompanying a fundamental note. These, he shows, are no isolated phenomena, but invariable concomitants of nearly all musical sounds. In fact, what appears to be a simple note of any assigned instrument, is really a composite sound consisting of a number of different tones, all, however, members of a series connected together by a simple law. The quality of the sound depends on the relative intensities in which these partial-tones are present in the whole mass of sound (Klang) heard. Helmholtz illustrates his theory by determining the relative intensities of the audible partial-tones produced by the principal kinds of musical instruments, and also those corresponding to the different vowel sounds of the human voice. He has also invented an apparatus by which the most important members of the complete series of partial-tones corresponding to a fundamental tone can be sounded with any assigned relative intensities, and which is capable of producing a tolerably close imitation of many sounds differing widely from each other in quality."

SEXUAL SELECTION.—From a second article by Pye-Smith in *Nature* for April 13th, in continuation of his review of Darwin, we copy the following:—"We must admit that, on the whole, birds and other animals admire the same forms and colors which we admire, and this perhaps, may be admitted as an additional argument in favor of their kinship with us. Some of the ugliest creatures (like the hippopotamus) appear to have been quite uninfluenced by sexual selection, while the magnificent plumes of pheasants and birds of paradise are undoubtedly due to its operation. That it has occasionally led to unpleasant results in birds and monkeys of aberrant taste, is no more strange than that all savages do not carve and color as well as the New Zealanders, or that most Englishmen admire ugly buildings and vulgar pictures. The prevailing aspect of nature is hearty, and the prevailing taste of man is for hearty also. The means by which natural hearty has been attained are various. Natural selection is one, by which the healthiest, and therefore the most symmetrical forms survive the rest. Protective mimicry is another, by which fishes have assumed the bright colors of a coral garden and butterflies the delicate venation of leaves. Flowers again have in many cases obtained their gay petals and fantastic shapes from the advantage thus gained for fertilization by insects. The successive steps which have led to the graceful forms and brilliant tints of shells, to the intricate symmetry of an echinospine or a nummulite, these are as yet untraced even in imagination. But that many of the most striking ornaments of the higher animals, and almost all those which are peculiar to one sex, have been developed by means of sexual selection, is a conclusion which can no longer be distrusted. There remain doubtless many exceptions to be accounted for, many modifying influences to be discovered; but the existence of a new principle has been established which has helped to guide the organic world to its present condition. Side by side with the struggle for existence has gone on a rivalry for reproduction, and the survival of the fittest has been tempered by the success of the most attractive."

ALKALI METALS SOLUBLE IN AMMONIA.—It will be recollected that Prof. Chas. A. Seely proved that "ammonium amalgam," so called, is simply a metallic froth of which the liquid part is mercury, and the gaseous part a mixture of hydrogen and ammonia. His attention having been afterwards directed to Weyl's researches and conclusions, he carefully repeated Weyl's experiments, the results being a full confirmation of his own views. An article by him in the *Journal of the Franklin Institute* gives some experiments, the detail of which is preceded by the following remarks:—"This discussion involves the relation of ammonia to the alkali metals, and the results which grow out of that relation. Now, the key to the whole subject is the fact that liquid anhydrous ammonia is a solvent, without definite chemical action, of the alkali metals. I mean that these metals dissolve in the ammonia as salt dissolves in water,—the solid disappears in the liquid, and on evaporating the liquid, the solid reappears in its original form and character. There is no definite atomic action in any such cases; the components of the solution are not changed in their chemical relations to other substances."

CORRESPONDENCE.

Irrigation in Northern Italy.

EDS. PRESS:—In connection with the subject of irrigation, which is now attracting so much attention throughout our State, allow me to send for insertion in your columns an extract from an eminent writer of Great Britain. The result of the extensive system of irrigation in Northern Italy, as described by him, is full of encouragement to those who are ready to organize companies for this purpose in the valleys of California.

By a reference to this extract, and an examination of the map of Lombardy, it will be seen that the only advantage which the valley of the river Po has over Sacramento and San Joaquin valleys, as regards means for irrigation, is the number of lakes along the base of the Alps. These form huge reservoirs which furnish a more abundant supply of water than we can obtain from our streams alone. But it is to be hoped that what water we have, can be employed to such advantage, as to produce results like those described in the following extract.

In reading the description, one is particularly struck with the fact that the fertile soil of Italy is very similar to that of California, as we advance from the base of the mountains towards the rivers and the sea. May the future historian write as glowingly of success in irrigating our own San Joaquin valley, as the writer does here of Italy.

He says: "The whole plain of Lombardy, naturally of great fertility, is rendered still more productive by a system of irrigation more complete, we might almost say more magnificent, than is to be found in any other part of the world. Enclosed between two noble chains of mountains, the Alps to the north and west, the Apennines to the south, the deep and rich soil of this plain seems to have been deposited by an inundation which brought down a portion of the substance of those mountains; consisting, near their bases, of large rounded stones, which gradually diminish in magnitude towards the shores of the Gulf of Venice, where the soil consists entirely of finely-divided matter. To the east of Milan, this plain is covered with pastures of extraordinary richness, from which is brought the celebrated Parmesan cheese. These pastures are regularly flooded. The grass is cut no less than four times in the year; part is made into hay, and part is carried green to the cows, which are kept in stalls.

"In about fifteen years, the herbage, in consequence of this continual watering, becomes too coarse for use; the land is then plowed up, and during five years cropped with wheat, oats, maize, hemp and beans, after which it is again laid down to grass.

"This admirable system of irrigation, which has rendered Northern Italy the most fruitful country, perhaps, in the world, was established in very early times. It was during the flourishing period of the Lombard republics, about the era of our Norman and early Plantagenet kings, while the greater part of Europe remained yet in a state little short of barbarism, that the design was conceived and executed of this great national work. From each of the lakes that occupy the lower declivities of the Alps, and receive the waters of their innumerable springs, issues one principal canal, which, as it descends, is subdivided into a multitude of smaller channels, visiting every district, every farm, and even every individual field, to each of which the water is admitted at pleasure by sluices; and having performed its office, passes off by another cut to the lower land, till it ultimately reaches the Po, which carries off the whole drainage of central Lombardy into the Gulf of Venice. The banks of these canals are mostly planted with willows and alders, over which are frequently seen rows of tall poplars.

"The principal canals belong to the government; the smaller ones are generally the property of individuals, who let or sell the use of the water at so much per hour."

Such is a brief sketch of the system of irrigation in Italy, which has been in operation for more than six hundred years. If they are enabled by this means to cut their hay "four times in the year," may we not

reasonably hope, by perfecting our system of irrigation, to harvest wheat and barley twice a year? Surely similar systems can be made equally successful by the capital, skill and energy of California. w. w. Fairview District, Stanislaus Co.

The Cinchona Tree in California.

The tree from which the Peruvian bark of commerce is obtained, is known by the above name. It is a native of South America, and is found in greatest abundance in Peru—whence its name. From this bark is manufactured quinine, and many other preparations so extensively used in the cure and prevention of diseases peculiar to tropical and miasmatic countries. It is, indeed, in some form the great reliance of the medical profession in the treatment of most all diseases of a malarial origin. There is generally but a faint idea of the great quantity of this bark, and the preparations made from it, used in the world. There were imported into the United States alone within a period of six years ending in 1865, according to the report on commerce and navigation, of bark, 1,631,876 pounds, of the value of \$1,874,112; of all the salts of quinine, 7,525 pounds, of the value of \$287,138; total value, \$2,161,250. In view of the great medical value of the bark, and the probability that the source from which it is obtained will at no distant day be exhausted, different nations have encouraged its cultivation within their own territories.

The English Government, as early as 1859, commenced the cultivation of the Cinchona tree in India, on the Neilgherry mountains, and the effort has been attended with good success. In 1866, the plantation, according to an official report, contains 1,123,645 plants. It has been ascertained by experiment and analysis, that the bark of these trees in India contains the same properties, and in the same degrees, as that from South America. A valuable species of this tree is also found growing naturally on the dry slopes of the Central Cordillera of New Grenada.

The section of country in the Peruvian Andes covered with these trees extends from ten degrees north latitude to twenty degrees south of the equator, at elevations from 6,000 to 11,000 feet, where the average temperature is about 68°. The temperature of the New Grenada district in which it is found, runs all the way from 35° to 60°, and sometimes in the night the temperature goes down to the freezing point.

We have culled the above facts from an able memorial to Congress by the American Medical Association, in which they ask the aid of the general government to establish a plantation of the Cinchona trees in the United States. They especially recommend for such experiment a locality on the western slope of the Sierra Nevada, in California, at an elevation of from 1,500 to 2,000 feet above their base. They say that they believe that all the conditions of climate, which would support the Cinchona, can be found on these mountains at about that elevation. From this memorial we make the following interesting abstract, which, by the way, is one of the most comprehensive and truthful topographical descriptions of California we have ever noticed:

"California covers about 189,000 square miles, between 32° 30' and 42° of north latitude, and is traversed throughout its whole extent by two distinct lines of mountain ranges, while its southeastern limits stretch off towards the 114th degree of west longitude, into the table-lands of New Mexico.

"Sloping back to the first of these mountain ranges is a long line of coast under the control of the ocean—being the only portion of the State preserved from desiccation during the rainless summer, by showers of mist—which has a uniform climate of about 56°, the mean temperature of any one month never exceeding 61°, and never falling below 50°. The extensive region bordering on the great Bay of San Francisco, which seems to adopt one-half of its climatic features from the ocean, and the

other half from the interior and more heated valleys, is inexhaustible in agricultural resources. The Pajaro, and some other valleys further south, to which the oceanic winds gain access through gaps in the Coast Range mountains, belong also to the same system, as well as the Sacramento and San Joaquin valleys, although in a less degree, these latter being further removed from the ocean. The mean temperature of the two last-named valleys is about 60°; while the hottest day is 94°, and the coldest 32°. Next we have the interior mountain region (Sierra Nevada) with innumerable little valleys, buried more or less in snow during the winter, and converted by the summer's sun at midday almost into furnaces, and yet luxuriant with all kinds of delicious fruits. Finally, the southern region, which includes nearly one-fourth of the State, being removed alike from both extremes of temperature which operate, as we have just seen, in the more northern parts, and uninfluenced either by mountain or ocean, enjoys a most genial and equable climate. Moreover, it has been found, practically, that California covers all the zones that belt the earth with climatic differences, for there is scarcely a cereal, fruit, plant, or tree, wheresoever it may be indigenous, that cannot be grown or nurtured in the open air in some part of this State.

"Another remarkable fact connected with the complex atmospheric conditions of California is that the well-known ordinary effects of latitude, longitude, and altitude seem to bear with but comparatively little direct relations in some portions of the State. In the more southerly part of the interior mountain system, the general character of the vegetation has obtained for these mountains the title of the 'Alps of California,' but their analogue is found in the Arctic zone rather than in Switzerland. In the Swiss Alps, trees are not found higher than 6,200 feet above the sea. In the California Alps, trees are found 11,000 feet above the sea, and good pasturage extends from 5,000 to 10,000 feet above the sea level, and even higher—up to the very crests of the peaks. At 3,500 feet above sea level the dense forest begins. The trees are mostly sugar and yellow pine, Douglass spruce, fir, and bastard cedar. Along the western slope, at an altitude of 5,000 to 7,000 feet, the big trees, or giant sequoias, are abundant, not merely occurring in isolated groves, but scattered abundantly in common with the timber for a distance of at least twenty-five miles along the tributaries of Kings, Kawent and Kern rivers.

"Considering, therefore, the peculiarity and variety of the climatic conditions and vegetable productions of California, it can scarcely be doubted that a locality may be found here for the propagation of the Cinchona as readily as in India, where its cultivation has been attended with success."

California Savings Banks vs. California Improvements.

Within the last four or five years past there have been established in nearly all the cities and interior towns of this State, banks for the deposit, safe keeping and loan of money,—generally called Savings Banks. The extent to which these institutions have succeeded in accumulating together the money of the country, both in large and small sums, is truly astonishing. Notwithstanding they have also been very successful in loaning out large and truly astonishing amounts of the money so accumulated, there are yet millions of money constantly lying idle in their vaults.

The periodical reports of these institutions show them generally in a most flourishing condition, and their business constantly on the increase. They are all at this time using the greatest exertions to keep up the monthly dividends to their patrons of one per cent. per month. Indeed there seems to be a sort of business rivalry going on between them, and the point to be gained by this rivalry seems to be, in the opinion of their officers, that the institution that succeeds in making the greatest monthly per cent. dividends will be entitled to and will receive the greatest amount of public favor and patronage. All this seems very well. It is claimed that these banks are begetting habits of frugality and economy among the laboring class.—That they are thus utilizing the loose capital of the country and assisting

energy and enterprise to improve our farms and generally to develop and turn to good account the resources of the State. These are undoubtedly good objects, and those in part for which Savings Banks on this coast were originally organized and set in operation. But are not most if not all of these objects being defeated by the manner in which these banks are managed? Will a strife or rivalry between these banks to keep up money to a high rate of interest help energy and enterprise to develop the resources of the State? Will one and a fourth per cent. per month improve our farms, open and work our mines, build and run our factories? Will this high rate of interest heget and sustain energy and enterprise in any permanent and legitimate business? These are the abuses and not the uses of savings banks, and these abuses call for the exercise of the law-making power of the State.

But there are other points of complaints against these banks, which can only be removed by the force of public opinion, and the exercise of good liberal business judgment and discipline by their managers. Some of them refuse to loan money except on city real estate, and would prefer to take as security a non-productive sand bank owned by a speculator merely because the winds have heaped that sand up within the limits of San Francisco—than a good productive and well improved farm in the country, owned and worked by a judicious, energetic farmer, with a well established reputation for honor and integrity.

Again, the officers of these banks by refusing to recognise the intrinsic value of permanent and valuable improvements on land, are discouraging and retarding those improvements when by their position they could and should encourage them. For instance we published in our last week's issue the fact that Mr. Bughey of the Natoma vineyard, in an action against the Natoma Canal Co. for damages in going through his vineyard, showed, by several witnesses, that eighty-five to ninety thousand of his vines produced from 600 to 800 tons of grapes, worth at least \$50 per ton, or more than \$30,000, and that after the commissioner had taken testimony in the case for more than twenty days, and had visited the place, they rendered an award in favor of Bughey and others for nearly \$2,000 per acre for the land and vines thereon used and destroyed by the company. Again it is a notorious fact that the product of good vineyards throughout the State is at least three tens of grapes a year per annum and that they are sold at from \$20 to \$30 a ton for wine purposes. Notwithstanding these facts which all other business men recognise and act upon; we know that some of the Savings Banks refuse to place any additional value on land in consequence of its having on it valuable productive vineyards, and that this unnecessary and illiberal rule is working very disadvantageously to the increase of this crop of valuable and permanent improvements in the State. There is too much idle money and too many idle men among us, and this illiberal course of the Savings Banks is increasing rather than relieving the difficulty.

THE Sacramento Beet Sugar Company has obtained a first-class expert from Germany, Herr Ernst, who prefers the diffusion process to that in use in Alvarado. The company has four hundred acres of beets on the American river bottom not looking very promising yet, on account of north winds. It contemplates getting a seventy-five ton sugarcane in time for the present crop. Two acres of water-melons are put out as an experiment in melon sugar making.—*Alta*.

A COSTLY CARPET.—The Sultan of Turkey has presented the U. S. Government a magnificent carpet manufactured expressly for the East Room of the White House. It is woven in one piece, was made at the Imperial factory, being a year in preparation, weighs 1,500 lbs., and is said to be worth \$9,000 to \$10,000. Red and blue are the prevailing colors.

COAL AT ASPINWALL.—A telegram, dated Aspinwall, April 25th says: A discovery has been made of coal mines and oil wells, thirty miles from Aspinwall. The mines are reported to be inexhaustible, and the coal of a superior quality, equal even to the best imported.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, April 29th: Fine ore still coming out of Monitor No. 3.... Work on the M. & N. W. Mill progresses. More men will be put at work Monday. The amalgamating machinery has been ordered, and the Stetefeldt furnace will be running in July.... Krom's Dry Concentrator will soon be tested in Monitor.

The *Chronicle* of April 29th says that the mining prospects are more flattering than at any former period in the history of the county. Capital is coming in. Some valuable ground is about to be transferred, and some extensive mining operations inaugurated.

AMADOR COUNTY.

BURNED.—*Dispatch*, May 6th: The chlorination works, owned by Breedlove & Tarr, near Sutter Creek, were completely destroyed by fire on Thursday of last week. The loss is estimated at \$6,000.

EIGHTY-FOUR POUNDS.—*Ledger* 6th: We saw at the office of Wells, Fargo & Co., Wednesday, two bars of gold each weighing forty-two pounds.—They were the product of a two weeks' run of one of our quartz mills.

THE AMADOR MINE.—The work of re-timbering the Eureka shaft progresses, and they are now down about eleven hundred feet.

ELDORADO COUNTY.

GEORGETOWN.—Cor. of Placerville *Democrat*, May 6th: The Taylor Co. have the shaft completed, and are pushing the drift towards the ledge at the rate of two feet per day. Mr. Hart has leased his claim for six months to E. W. Blaisdell & J. H. Morgan, of San Jose. They having the privilege of buying at any time during the six months for \$3,500. The St. Lawrence claim have been crushing rock which yielded over \$15 per ton. They are pushing down their shaft and the ledge is improving. The Eureka is running hut as yet has not cleaned up. Everything looks finely. J. H. Adams and others of San Jose, are opening a valuable claim below Garden Valley.

INYO COUNTY.

KEARSARGE.—*Independent*, April 29th: The immense improvements at the mine and mill are about completed, and Supt. Winters will find things in tip-top shape. The tramway will be finished to-day; the turbine wheel is ready for motion. Six Wheeler pans have been added to the mill, and on the 5th of May the works start up for all time. There have been some 40 men employed; this force will now be transferred to the mine.

The Deep Spring mill is now in motion, operating successfully, and getting out good bullion.

BULLION.—During the week ending Saturday the 22d inst., there were shipped from the furnace of Mr. V. Beaudry, at Cerro Gordo, 1,225 bars, weighing 84 pounds each.

NEVADA COUNTY.

NORTH BLOOMFIELD.—Cor. of *Transcript*, May 7th: The Yuba Co.'s shaft, pursuing its downward course, with bright prospects. The French Corral Water Co. commenced sinking a shaft a few days ago on the line of the gravel channel.

GOOD CLEAN UP.—*Grass Valley Union*, May 3d: The Webster mine cleaned up Monday, for one day's run, \$1,200. The gravel has every appearance of being a very large deposit. We tried a pan ourselves, on Monday, and got \$9.

JOHN BRIGHT MINE.—Same of 4th: A company of men are working the mine on shares. The mill has five stamps. A few days ago a run of quartz was cleaned up and the result was \$2,100. This gives the miners at work on shares, \$6 a day to the man.

THE MINING SITUATION.—Condensed from same of 7th: The Eureka made a good month's run. Rock, the richest yet, came out a few days ago.... The Idaho mine is steadily paying.... East Eureka, or Grass Valley Consolidated, is now owned by an English Co., who are putting up crushing, hoisting and pumping machinery.... The Webster breast of gravel is 85 feet long and has been carried along for 20 feet. The bed-rock is rolling, but has a general inclination. During this week, or for six days, 195 ounces in round numbers, of gold have been taken from the drift, and this was worth \$3,510. The drifters have been 20 in number, in two shifts of 10 each.

This will give a labor account of \$360 for the week. Water expenses and the cost of running the machinery amount to comparatively a small sum. We visited the mine yesterday. We could see gold in every car load raised.... In the Altona, the shaft is sunk to bed-rock through rich gravel, and a tunnel is being run from the bottom. In two weeks everything will be ready to take out gravel to good advantage.... Hope Gravel mine last week cleaned up 107 ounces of gold, worth \$1,800, and this week about 100 ounces. The Hope crushes all that comes out. It may be that the bed-rock tunnel now about completed easterly will tap a large body of rich gravel.... In Alta No. 3, the shaft bottomed on bed-rock, higher by fifty feet than was expected, but in every way from the bottom, where drifts have been run the rock pitches. On this bed-rock more or less gold is seen in gravel.... Hope No. 2 are getting machinery into place for the purpose of sinking to bed-rock. The claim is near the east slope of Alta Hill.

PLACER COUNTY.

THE GREENE MINE.—*Herald*, May 6th: Wm. G. Greene got his new 4-stamp mill and one Hepburn pan to work last week and run through 12 tons of ore which yielded some \$14,000 in melted gold—over \$1,100 to the ton. This is the most astounding yield we have ever chronicled, and we doubt if it has ever had its equal from the same amount of gold bearing quartz. Another new pan will arrive this week, and when everything is completed it is expected that 10 or 12 tons of ore per day will be worked. There is now on the dump at the shaft one or two hundred tons of ore, fully half of which is rich. This mine has been extensively prospected by shafts and drifts and all expenses, including the mill, pans, and machinery, have been met by running small portions of the quartz through an arastra occasionally or pounding out gold in a hand mortar.

COLFAX.—Cor. of same: I saw yesterday some excellent prospects from a ledge lately discovered at Secretown by Peter Groves & Co. They are now forty feet deep and the ledge will average two feet in thickness. The gold is generally diffused through the rock. The prospects of the Rising Sun were never better. I would say, judging from the quality of rock on the dump, that they will pound out \$7,000 this month. J. A. Hoagland & Co. will move their machinery from Iowa Hill, in a few days, to Emigrant Gap. This is a new ledge.

GOLD IN BULK.—*Stars and Stripes*, May 4th: Last Sunday a Chinaman sold to Hubbard & Andrews a small slug of solid gold about an inch wide, an inch and a half long, somewhat thicker than a twenty dollar piece, weighing twenty-three dollars, which bore evidence on both ends that it had been chiseled or chopped with a dull instrument from a solid mass. For eighteen months Chinamen have at intervals sold to the same firm blocks of gold, bearing similar marks, weighing 40, 50, 100 and as high as 200 dollars each.

GOLD SHIPMENTS.—Last Monday Hubbard & Andrews shipped to San Francisco thirty thousand dollars' worth of gold. Their Monday shipments have for some time averaged twenty thousand dollars and upwards.

PLUMAS COUNTY.

SLATE CREEK.—*Quincy National*, April 29th: Brewster & Hawthorne have commenced running their pipes and have a very large head of water. This is the first operation of the season commenced in that section, on a large scale.

LA PORTE.—We learn that water is becoming plentiful, and the miners are hard at work. Conly & Cowell have commenced piping, and will as usual, make a very large clean-up. Baker, Eberly & Co., of Secret Diggings, have also commenced running. They have excellent prospects. The Bald Mountain Tunnel Co. is pushing ahead, and it is thought that the tunnel will develop very rich ground. They have let a new contract for running a hundred feet more tunnel, at the rate of \$8 per foot. The Alturas Co. have good prospects, and will commence pushing ahead in a short time.

SIERRA COUNTY.

ITEMS.—*Messenger*, May 6th: P. Grant, owner of the Leonard quartz mine and mill, has gone to work to make the thing pay. He is now crushing rock.... It is estimated that the North American gravel claims at Whiskey Diggings, will take out \$50,000 this season.... The Shamrock gravel claim, on Fir Cap, paid 280 ounces in the last four weeks, working night and day with five picks to a shift.... Bordwell & Cooley started a tunnel in the first ravine east of La Porte, nine years ago, and were laughed at. A few days since rich gravel was struck at the end of a tunnel 1,700 feet

long. The larger portion of this ridge is in Sierra.

ITEMS.—*Democrat*, May 4th: The Keystone mill, 12 stamps, after a run of 30 days, cleaned up over \$22,000.... The contract of 500 feet tunnel on the Bigelow is completed, and they are now cutting across the ledge.

TUOLUMNE COUNTY.

THE HUGHES CLAIM.—*Sonora Democrat*, May 6th: In this claim, near Jeffersonville, Mr. Hughes has just put up an eight stamp mill for the purpose of crushing his gravel tailings, of which he has on hand 6,000 tons. The gravel when first extracted is thrown into a circular iron vessel; it is there exposed to the action of water and a set of large revolving iron teeth by which the hard, grey concrete, is torn to pieces. This operation is carried on in a mill close to the tunnel's mouth. The tailings are carried in sluices to the new mill an eighth of a mile below.

YUBA COUNTY.

SUCKER FLAT.—Cor. of Marysville *Appeal*, May 4th: Hydraulic mining is carried on more extensively here than in any other part of the State. The first claim above Timbuctoo is called the Estner claim, and is owned by the Excelsior Canal Co. Next comes the Babb Co. who are running a bed rock tunnel which they intend to complete in six months, when they expect to strike very rich pay dirt. The Rose's Bar Co. are running two heads of water. They are also running a bed rock tunnel that will tap the lead 80 feet below the present working level. This is no doubt the richest claim between here and Timbuctoo. Immediately adjoining is the Pittsburg Co. which at present have shut down. The Blue Gravel Co. are piping away in the upper strata, and running at the same time their bedrock tunnel. The Union claim, owned by the Nevada Ditch Co. at present is lying idle. The Blue Point Co. are making their way down to the bedrock to obtain a place to work from. It is estimated that the next clean up will reach \$80,000. The company are using five pipes, and have ground enough to last many years. This is one of the richest hydraulic claims on the Pacific Coast. The Smartsville Co. are running two heads of water, and expect to make a big clean-up next week. The Enterprise Co. are running a tunnel, for a sluice way, to the upper portion of their claims, which they will not complete in less than a year.... Timbuctoo is dead, and its buildings deserted.

Nevada.

COPE DISTRICT.

The Elko *Independent* says that the Humboldt lode, Lone Mountain, shows a 4-foot ledge at depth of 30 feet; and that specimens exhibited, are estimated to contain \$200 per ton.

ELY DISTRICT.

OUR MINES.—*Record*, April 30th: All are looking well, and the dumps are kept full as fast as the ore is hauled off. New developments are constantly made as the sinking goes on, and rich ore is taken out.

IMPORTANT SUIT.—The Washington and Creole companies have commenced an action against the Meadow Valley M. Co. for the recovery of the ground known as the "Creole Ledge." The property in controversy also includes a portion of the M. F. ledge. These mines are among the most valuable in the district.

BULLION.—Wells, Fargo & Co., shipped yesterday by the way of Salt Lake, for the Meadow Valley Co., bullion \$12,762.48; for Raymond & Ely Co. \$11,481.50.

Same of May 4th: W. F. & Co. shipped to-day by way of Salt Lake, for the Meadow Valley Co., bullion \$10,801.35; and for B. W. Field, \$6,789.06; total, \$17,590.41.

ITEMS.—The owners of the Alps have refused \$50,000 in gold coin for their mine. The Highland Chief shows every indication of being near the ledge. Thousands of tons of rich rock in our district wait more mills.

EUREKA DISTRICT.

ITEMS.—*Sentinel*, May 6th: Roslin furnace is running on ore from the Elise and Hamburg mines, and producing four tons of bullion per day, of as high grade as ever made in the place.... The miners in the Richmond yesterday brought to the surface a single specimen of ore weighing 1,298 pounds, which assayed \$371 per ton.

TYBO.—Cor. of same: This is 12 miles south from Hot Creek. The Two G is the principal mine. It belongs to Gillette & Gally. A shaft is down 35 feet, and a level in 20 feet. There is 70 tons ore on the dump. Of this same ore, 2,300 pounds smelted at Eureka, gave the mine \$130; and four tons milled at Belmont gave \$100 per ton. A custom mill would do well here.

HUMBOLDT.

ARIZONA CONSOLIDATE MINE.—*Silver State*, May 6th: The force upon this mine has been increased to 65, who bring to the surface daily 40 tons of ore. The whole body of the ledge is taken out and brought to the surface where it is assorted into milling and shipping ore. Should the ledge maintain throughout the claim its size as inferred from the extensive explorations already made, there will be 1,600,000 square feet of ledge surface at an average thickness of two feet, which at \$75 per ton, or \$5 per cubic foot, will make \$16,000,000 in silver.

NORTH STAR.—At 150 feet from the mouth of the tunnel, a fine body of ore has been cut into, which is little inferior to that in the Arizona.

SHEBA MINE.—The concentrating mill is crushing ten tons of \$50 ore per day, which is reduced to one ton of \$500 ore, for shipment. The mill is at work on the large accumulation of low grade ore thrown to one side when the mine was formerly worked. The ledge is exposed 120 feet along its course and shows 2½ to 3 feet in thickness the entire distance.

DE SOTO.—Work is prosecuted with a light force, owing to the fact that it is owned by parties in San Francisco who are a little tender footed in mining operations where an outlay of money is required. All accounts bear testimony that the mine is looking exceedingly well, with large quantities of ore in sight, equal to that now being found in the Sheba.

POTOSI.—Contractors had reached the ledge and found it eighteen inches thick and well charged with splendid ore of this kind for which the Arizona belt is becoming famous.

REESE RIVER.

THE MILL.—*Reveille*, May 4th: The machinery of the Knickerbocker mill has nearly all arrived. The hoiler and engine are on the road, and the whole will be delivered at the site within the week.

BULLION.—The shipment through Wells, Fargo & Co., for April consisted of 100 bars, weighing 8,330 pounds, of the value of \$104,282.56.

BELMONT.—*Ely Record*, April 30th: The El Dorado South, is still worked by Leon & Co. Fine hoisting works have been erected, and a depth of three hundred feet reached. Below the water line the vein is 11 feet wide and the ore averages \$250 per ton. The Transylvania, owned by Canfield, is extensively worked and proves remunerative. Many other mines, that have lain idle for a long time, are being worked. Canfield's mill is kept steadily at work, has a Stetefeldt furnace attached, and gives general satisfaction. Under the present impetus given to mining it is impossible for the mill to crush half of the ore taken out, and large quantities are shipped to Austin. Many who left Belmont a couple of years since, are going back.

WASHOE.

SAVAGE.—*Enterprise*, May 7th: The yield has averaged 110 tons per day, milling \$23 to \$25 per ton. The principal portion is from the eighth and ninth levels.

HALE AND NORCROSS.—The dividend for May has been passed, owing to expenses to be incurred in sinking an incline to open another level, and in re-timbering between 500 and 600 feet of the main shaft.

CHOLLAR-POTOSI.—During the week, this company have extracted 1,690 tons of ore, 1,565 tons of which have been sent to the mills. The average assay of this has been \$55. The bullion shipment for the week was \$84,066.

GOULD AND CURRY.—The re-timbering of the shaft is completed within five feet of the top. The replacing of the bases of the main truck and the connecting foundation timbers adjoining the machinery is carried on with energy. The sinking of the shaft will shortly be commenced.

IMPERIAL-EMPIRE.—They are raising from the 1,300-level on the Holmes ground and are now up fifty feet. No ore is being extracted.

SEGREGATED BELCHER.—There are now extracted 25 tons of ore per day. The Eureka mill is kept constantly running. The bullion shipment for the week amounted to over \$14,000.

OPHR.—The new wheel will be in place and the water pumped out to-morrow or next day.

CONSOLIDATED VIRGINIA.—In pushing forward the north drift from the main west drift hard rock has been encountered. It is now being advanced north-easterly.

YELLOW JACKET.—The average daily yield has been 175 tons averaging \$34 per ton, principally from the 1,000-foot level.

DANEY.—The drift from the bottom of

the main shaft will reach the lead the first of next week.

CROWN POINT.—The Co. are taking out 165 tons per day, which averages \$35 per ton without being assorted.

CALEDONIA.—This company are taking out the usual ore. Last Wednesday they filed their certificate of incorporation. Capital stock, \$2,000,000.

SIERRA NEVADA.—Still shut down by the Kenosha injunction. Ore is being taken out on a contract from the Sacramento and Meredith portion of the mine, and some prospecting is being done on the Sierra Nevada end of the claim.

LADY BRYAN.—The Lady Bryan will start up in two or three days. The pump is working finely. A force of miners is getting out ore, and a large amount is now on the dump.

SURTO TUNNEL.—The Tunnel was in last evening 1,945 feet. The ground works well, and a full force of men is employed. There is no water coming in.

OVERMAN.—This is yielding about as usual. The ore is mostly low grade, assaying \$21. It mills 65 per cent. of the assay.

CHEAP PROPERTY.—The Hope mine, in lower Silver City, with a pony engine, cars, car track, tools, and all the realty connected with the mine, was sold on the 5th by the assignee in bankruptcy, to H. H. Flagg, for \$1,000. This is the cheapest piece of property that we have heard of lately. We understand that the mine will start up again shortly.

BULLION.—The following is the shipment of bullion by Wells, Fargo & Co. from this city for the quarter ending March 31: The shipment for January was \$850,446.53; for February, \$921,267.98, and for March, \$871,836.35, making the total \$2,643,443.86.

WHITE PINE.

REVIEW.—*News*, May 6th:—There have been some 20 mines started work during the week. One more mill (the Stanford), has commenced running. There is no lack of ore, out and ready for sending to mill. Treasure Hill is crowded with huge dump piles. The Tramway, which made an unsuccessful attempt last week to start, has been undergoing a remodeling process, and a large force has been employed. There have been many new discoveries made during the week. Smelting works which, for a long time, have remained idle, are being placed in repair, and many improvements made.

ITEMS.—Work continues in new shaft on Eberhardt ground. The rail track to the tramway, 600 feet, is completed. Original Hidden Treasure never looked better. The new south shaft still going down through ore. About 300 tons on the dumps ready for mill. In Ward Beecher Consolidated, main shaft is down 75 feet, with indications of ledge at hand. South Aurora still sends ore to Stanford mill. Daily yield averages 45 tons. Silver Wave raises 20 tons daily, worked at Swansea mill. High grade ore body in Virginia holds out. Gen. Lee tunnel is in 30 feet; for the last 12 feet through ore. North Iceberg tunnel shows high grade ore for 8 feet on each side. Empire opens up wide, with good ore. Old Combination Co.'s mines looks finely; 200 tons on dumps. Charter Oak is worked under lease. Silver Plate has much ore on dump. Truckee has started up work under the new purchaser. Live Yankee ore assayed \$217; average sample. Pocotillo prospects improve daily. Of the base metal mines, Lucky Boy shaft is down 80 feet. Raises 1½ tons ore daily which assays \$140. Three men are working. Margaret has started work in earnest, after much cleaning up. Caroline shows a silver brick every week. High grade ore in Alhambra holds out, and the vein grows wider. Lower drift in C. T. Fay is in good ore all the way.

OUTSIDE DISTRICTS.—Tem Pinte mill is in constant operation, and another is projected. Troy mill will be finished by the last of June. Piermont mill has ore enough out to last some time. The Mineral Hill property has been sold to an English Co. The mill turned out \$120,000 in bullion last month.

MILLS AND FURNACES.—Stanford mill started up Monday on South Aurora ore. It works 50 tons daily. Big Smoky mill has plenty ore on hand and engaged for the whole season. Oasis is running on Ward Beecher ore. Swansea on Silver Wave. Engine and boiler for the Monte Cristo are on the road. Manhattan will be in trim this week. Metropolitan runs steadily. Big Smoky furnace is ready for work. Repairs in Alsop works nearly completed. It is said that the Rothschild Works will start up this month.

Arizona.

BRADSHAW.—Prescott *Miner*, April 29th: A town site has been surveyed in the midst of a fine growth of pine timber and springs of purest water. Sixty lots are taken and several parties have already built cabins. The site is on Bradshaw mountain, supposed to be 7,500 feet above the sea level. The excitement is on the increase.

ITEMS.—Mr. Pointer, Walker District, had made a run on several tons of ore, which gave \$75 per ton. The rains have raised the mountain streams, and the placer miners are busy. About two sluice-heads of water are running in Lynx Creek, and the boys are getting \$4 to \$15 per day each. From the Hassayampa we hear a similar story. Men are scattered along the creek from Noyes & Curtis' mill, for eight miles down, and all are doing well. The latest sensation in Big Bug is a new lode discovered a mile below the mill, reported to be very rich in gold.

Colorado.

PELICAN.—*Herald*, April 29: This lode, owned by J. McCuniffe, in Griffith district, is yielding very rich ore. Two assays, this week, gave these results: First and second class ore, average ore taken from heap at Palmer & Nichols' mill after being pulverized ready for treatment, 953 ounces of silver per ton, coin value, \$1,239.42. Third class ore, 248 ounces silver, coin value, \$322.50. The pay vein is from 6 to 16 inches in width.

PEWABO.—*Register*, April 26: Harker & Waterman are working the mine, under lease. They took out the water, and have reached a depth of 225 feet in the main shaft, having sunk 85 feet. The first 25 feet contained some pay; from that point down the crevice was wide, and filled with excellent ore. At the bottom the ore is not so good. As a whole the mine promises extremely well.

CARIBOU.—Cor. of same: The main shaft at a depth of 170 feet carries a three foot vein of the well-known "first-class Caribou ore." The east shaft worked by the old Caribou Co., now 90 feet deep, has a very fine vein of ore, 14 inches in width. A portion of the mine appears better than we have before seen it.

ITEMS.—Snow & Co. are working claims No. 3 and 4 on the Kansas lode. The bottom of the shaft, 150 feet from the surface, has a good crevice of ore. The first-class is sold to Prof. Hill, and the mill ore yields from 6 to 8 ounces per cord.

IDAHO DISTRICT.—THE GOLD SHIPMENT.—The total shipment by the three banks at Central City for April is \$92,550, coin value. And the total value for the year, so far, is \$378,250. The first four months of the year are always the poorest. It is pretty clear that our shipments from Gilpin county this year, will fall little short of two millions.

GEORGETOWN.—*Miner*, May 4th: The Marshall Co. are shipping \$6,000 silver bullion this week. Bismarck lode has a pay vein of 14 inches, solid. Stewart Co. have shipped, during the last 6 days, \$6,921 in bullion. Glen Alpine lode has a shaft 37 feet deep, and a drift 24 feet long. Palmer & Nichols' Reduction Works are in full blast. The new amalgamating barrels will soon be in running order. Bullion shipments for the week were \$5,431 ounces, coin value, \$5,809. College Lode, Republican mountain, furnishes ore assaying \$1,320 coin. Work in South American lode has been temporarily suspended on account of water. A drain tunnel has been commenced.

Montana.

BLACKFOOT.—*New North-West*, April 28th:—A company has been running a cut from Ophir into Blackfoot, and cleaned up Saturday \$4 per day to the hand for the week. They expect \$8 this week. Many absentees are returning to their claims for the summer's work. The Warm Spring Bar is attracting attention. There is fully one hundred acres and it prospects well. Geo. Bernard & Co. are bringing in a ditch five miles long from Snow Shoe.

QUARTZ GULCH.—Cor. of same: No. 20, above Upper Discovery, pays as high as eighty dollars to the set of timbers; Discovery is paying wages; and No. 17 below prospects from five cents to \$2.50 the pan, with four feet of gravel. Long Bar is paying well. Col. Miller made \$32.75 last week and wheeled the dirt 5,000 feet and washed it with a rocker. Nuggets weighing respectively \$30 and \$19.26 were lately taken from No. 17.

SILVER BOW.—Cor. of same: "Pioneer Ditch is brim full of water, and the miners are using it. I understand the ditches at Butte are full. Miners generally are looking jubilant, and anticipate a long run of water and a prosperous season."

Mining Stock Market.

(S. P. Stock and Exchange Board.)

SAN FRANCISCO, Thursday Eve., May 11.

The stock market has been much excited during the week. Crown Point has risen higher than ever, reaching \$275 on Monday, or over 100 per cent. higher than ever before. Belcher has also risen far above any previous point, touching \$130 on Monday and Wednesday, and \$136 to-day. Amador has sold at \$350 to \$360, and Eureka at \$85 and \$83.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week:

Latest Prices.				
May 4.	Highest.	Lowest.	May 11.	Adv. Dec.
Alpha.....	\$10	10	10	49
Belcher.....	135	125	125	—
Chollar-Potosi.....	90	68	69	—
Crown Point.....	275	185	265	80
Eureka Cons.....	11	11	10	—
Golden Chariot.....	45	37	38	—
Gould & Curry.....	75	78	82	7
Hale and Norcross.....	57	64	63	6
Ida Elmore.....	15	14	14	—
Imperial.....	85	81	82	30
Kentuck.....	69	70	63	69
Mendow Valley.....	14	15	14	1
Overman.....	7	8	8	—
Orig. Hid. Treas.....	4	4	3	1
Pewabow.....	48	48	45	—
Sierra Nevada.....	16	15	13	1
Yellow Jacket.....	10	9	8	13

Alpha.....	DILL, ASKED.	Ida Elmore.....	DILL, ASKED.
Amador.....	360	Imperial.....	80
Belcher.....	127½	Kentuck.....	68
Chollar-Potosi.....	68	Mendow Valley.....	15½
Crown Point.....	245	Ophir.....	8½
Eureka Cons.....	10½	Orig. Hid. Treas.....	9½
Eureka.....	—	Overman.....	4½
Golden Chariot.....	—	Savage.....	4½
Gould & Curry.....	81	Sierra Nevada.....	13
Hale & Norcross.....	63½	Yellow Jacket.....	8½

Dividends.

During the month of April, mining incorporations disbursed dividends as follows: Amador, \$4 per share, \$14,800; Black Diamond Coal, ¼ per ct., \$25,000; Chollar-Potosi, \$10, \$280,000; Eureka (Cal.), \$2, \$40,000; Eureka Cons., 75c, \$37,500; Hale & Norcross, \$5, \$40,000; Natoma Water & M., 1 per ct., \$3,000; North Star (Cal.), \$3, 9,000; Raymond & Ely, \$1, \$30,000; Redington Quicksilver, \$1 per share; Union Pacific Salt, ½ per ct., \$1,500; Yellow Jacket, \$2½, \$60,000.

On the 10th inst., the following dividends were paid: Amador, \$9,250; Chollar-Potosi, \$140,000; North Star, \$12,000; Yellow Jacket, \$60,000.

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, April 29, 1871.

IRON.			
Pig, Scotch, No. 1 (cash), per ton.....	\$33 00	@	\$35 00
Pig, American, No. 1 (cash).....	35 00	@	35 00
Pig, American, No. 2.....	33 00	@	34 00
Swedish, ordinary sizes.....	105 00	@	120 00
Common.....	72 50	@	77 50
Refined.....	77 50	@	105 00
Rods.....	82 50	@	120 00
Hot-shoe.....	95 00	@	—
Hoop.....	100 00	@	145 00
Scroll.....	100 00	@	125 00
Nail-roads, per lb.....	—	5½	—
Spring.....	—	7½	—
Tire.....	—	7½	8

STEEL.			
Bars, best cast, warranted, per lb.....	—	18	@ 19½
Sheet, best cast.....	—	16	@
Sheet, second quality.....	—	12	@
Sheet, third quality.....	—	12	@
Saw-plates, circular.....	—	20	@ 30
Double-shear, warranted.....	—	18	@
Single-shear.....	—	—	@
Montague & Co. (cast bars).....	—	15½	@
Machinery, round.....	—	11	@ 13
German, best.....	—	10	@
German, good.....	—	9	@
German, eagle.....	—	9	@
Bilster, warranted.....	—	14	@
Bilster, common.....	—	10	@
Jessop & Sons', common.....	—	17	@
Double-refined.....	—	26½	@
Stone-axe shapes.....	—	26½	@

SUNDRIES.			
American Lead, per 100 lbs.....	7 50	@	8 00
German.....	7 50	@	8 00
Bar.....	8 50	@	9 00
Pipe and Sheet.....	8 50	@	9 00
Musculman and Amer. Zinc, per lb.....	9	@	9½
Antimony.....	15	@	17
Spelter.....	7	@	7½
Copper, old.....	17	@	—

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.			
FRIDAY, May 12, 1871.			
IRON.—Duty: Pig, 37 ½ ton; Railroad, 60 ½ 100 lb. Bar, 10½ lb. Sheet, polished, 32 ½ lb. common, 12½ lb. Plate, 15c ½ lb. Pipe, 15c ½ lb. Galvanized, 2c ½ lb. Scotch and English Pig Iron, 3 ton.....	\$32 50	@	\$33 50
White Pig, 3 ton.....	—	03	@ 40
Refined Bar, good assortment, 3 ton.....	—	04	@
Boiler, No. 1 to 4.....	—	04½	@
Plate, No. 5 to 9.....	—	04½	@
Sheet, No. 10 to 12.....	—	05	@ 05½
Sheet, No. 14 to 20.....	—	05	@ 05½
Sheet, No. 24 to 27.....	—	05	@ 05½
Corren.—Duty: Sheathing, 3½ c ½ lb; Pig and Bar, 2½ c ½ lb.....	—	06	@ 26
Sheathing, 3½ c ½ lb.....	—	06	@ 26
Sheathing, Yellow.....	—	06	@ 26
Sheathing, Old Yellow.....	—	06	@ 26
Composition Nails.....	—	21	@ 22
Composition Bolts.....	—	21	@ 22
TRIM PLATES.—Duty: 3 ton, cent. ad valorem.....	12 00	@	10 50
Plates, 1 c Charcoal.....	10 00	@	10 50
Roofing Plates.....	10 00	@	10 50
Bars, 3 ton.....	15	@	15½
Steel.—English Cast Steel, 3 ton.....	—	06	@ 07
QUICKSILVER.—3 ton.....	—	06	@ 07
LEAD.—Pig, 3 ton.....	—	09	@
Sheet.....	—	10	@
Pipe.....	—	10	@
Bar.....	—	10	@
ZINC.—Sheet, 3 ton.....	—	11	@ 10½
BRASS.—Refined.....	—	25	@ 30
Born, ornde.....	—	6	@

San Francisco Retail Market Rates.

FRIDAY, May 5, 1871

MISCELLANEOUS.			
Butter, Cal. fr. d.....	35	@	40
Porked, Cal. d.....	—	@	40
do Oregon, d.....	—	@	40
Honey, 3 lb.....	25	@	30
Cheese, 3 lb.....	20	@	25
Eggs, per doz.....	30	@	35
Lard, 3 lb.....	18	@	20
Sugar, cr. 7 lb.....	100	@	100
Brown, do.....	10	@	13
Wheat, 3 lb.....	10	@	11
Sugar, Map. 3 lb.....	30	@	35
Wool Sacks, new.....	40	@	50
Second-hand do.....	67½	@	70

PRODUCE, ETC.			
Codfish, dry, 5 lb.....	12½	@	13
Flour, cr. 5 lb.....	23	@	25
Superfine, do.....	55	@	60
Meal, 100 lb.....	3 50	@	4 50
Wheat, 100 lb.....	2 50	@	3 10
Oats, 100 lb.....	2 00	@	2 10

FRUITS, VEGETABLES, ETC.			
Pine Apples, 5 lb.....	50	@	60
Bananas, 3 lb.....	3 00	@	3 50
Cal. Walnuts, 3 lb.....	20	@	25
Cranberries, 3 lb.....	75	@	80
Cranberries, 3 lb.....	75	@	80
Apples, No. 1, 4 lb.....	4	@	5
Pears, table, 3 lb.....	12½	@	15
Oranges, 3 lb.....	20	@	25
Lemons, 3 lb.....	20	@	25
Figs, dried, 3 lb.....	15	@	20
Asparagus, wb. 3 lb.....	12	@	15

ARTICHOKEES, DOZ.....			
Artichokes, doz.....	50	@	75
Brussels sprouts.....	15	@	15
Beets, 3 lb.....	20	@	25
Potatoes, 3 lb.....	2	@	3
Potatoes, sweet.....	2	@	3
Potatoes, new.....	4	@	5
Tomatoes, 3 lb.....	10	@	12½
Broccoli, 3 lb.....	10	@	12½
Artichokes, 3 lb.....	10	@	12½

POULTRY, GAME, MEATS, ETC.			
Chickens, apiece.....	75	@	100
Turkeys, 3 lb.....	20	@	25
Ducks, wild, 3 lb.....	15	@	20
Tame, do.....	15	@	20
Geese, wild, each.....	37½	@	50
Tame, 3 lb.....	25	@	30
From Chicago.....	75	@	100
Hens, each.....	75	@	100
Snipe, 3 lb.....	25	@	30
English, do.....	25	@	30
Yankee, do.....	25	@	30
Celery, 3 lb.....	75	@	100
Cress, 3 lb.....	25	@	30
Dried Herbs, 3 lb.....	25	@	30
Egg Plant.....	10	@	15

Bacon, Cal. doz.	15	@	20	1
Cauliflower, doz.	50	@	25	5
Cabbage, doz.	10	@	50	3
Carrots, doz.	30	@	25	8
Colery, doz.	75	@	50	50
Cress, doz bun	20	@	25	12
Dried Herbs, b'b	25	@	50	25
Egg Plant		@		10
Matatoes, doz.				15
String Beans, doz.				12½
Summer Squash				3
Dry Lima, sh.				8
Spinage, p. bkst.				25
Salsify, p. bunch				25
Tarrnips, doz.				25
Asparagrus				10

SERICULTURE.

Feeding the Worms.

In our last article on this subject, we had watched and fed the little worms, from the day we lifted them off the cards of eggs, until they had grown to more than double their size when first hatched. We had noticed their gradual change of color from an almost jet black to a grayish color, especially about the head. We had seen that as they approached the time for the first sleep or molting, they had assumed a yellowish or hilly look, and that many of them had disappeared under the leaves. We had waited from 24 to 48 hours and had seen them re-appear on the surface of the leaves, very much brighter and

ing—from five to six days. The fourth from third to fourth molting—from six to seven days. The fifth from fourth molting to spinning cocoons—from eight to ten days.

In good weather all these changes are passed in this State in about thirty-two days. We have had the Japanese bivoltines make cocoons in twenty-eight days, and we have known the annuals to occupy forty days,—when the weather was unfavorable.

In China, the Chinamen say that the worms frequently make cocoons twenty days old. The nights there are much warmer than here, and the worms eat as rapidly in the night as in the day time, and grow much more rapidly and pass through the moltings more quickly, than here where the nights are cool.

condition for the worms to sleep on, as they will pass through the molting much more successfully on a dry bed than on a cold wet one. When the worms are asleep they must not be fed at all.

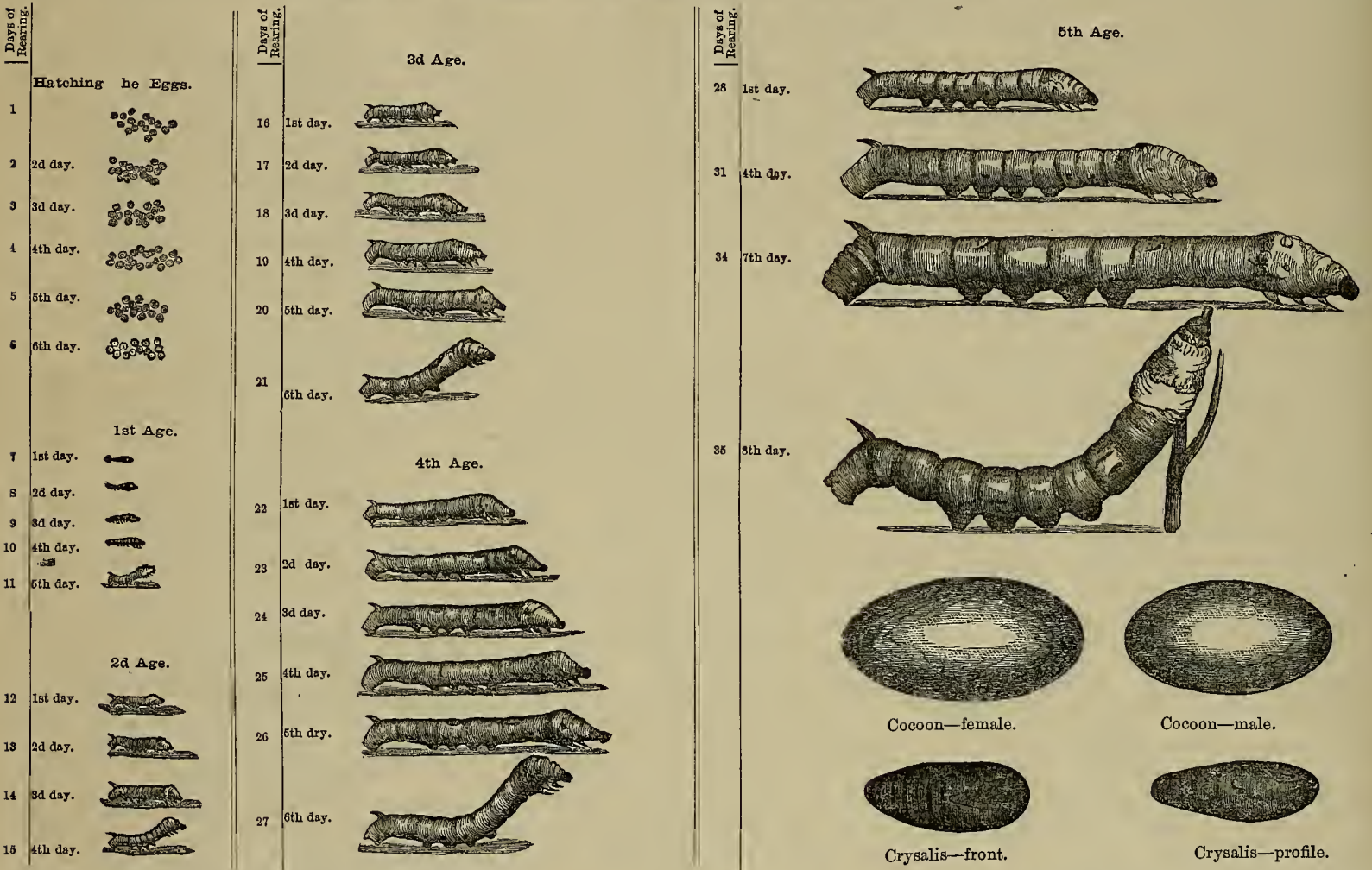
At these molting times is the greatest danger of trouble. If the bed of leaves is too thick and damp, the worms are a long time in molting, and they are apt to come up from molting very unevenly as to time and to appear weak and feeble. This latter condition may be known by the great amount of fine web, spun by the worms on the surface of the bed as they wake up and begin to move about. When you see this it is best to remove them from the old bed as soon as possible, even though you leave some still asleep to be thrown away. If, however, the bed is in good order and dry, the worms will wake up evenly, appear

grow larger, these strips may be cut wider, and when the worms are still large, whole leaves may be used for this purpose. The worms will leave the bed of fine leaves and climb upon these strips. Now watch them and when they are generally on the strips and before they have eaten them so much that they will not hang together, lift these strips up carefully one by one and lay them carefully down, on a clean paper. If the worms are too crowded on the old bed, and they generally will be so about every other day, put those from one paper on two or more papers. It is very important that this matter of changing and dividing be properly and most rigidly attended to.

It may be of some assistance in aiding the judgment of new beginners to observe the following directions as to space that a certain number of worms should be made to occupy during the different ages.

For convenient reference on this subject and to assist in determining what number of eggs should be hatched or worms fed on

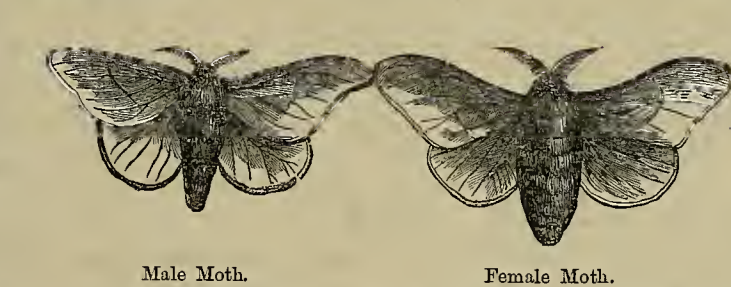
ILLUSTRATED TABLE—SHOWING THE SILKWORM FROM THE EGG TO THE MOTH—LIFE SIZE.



lighter colored, and anxiously moving about over and under each other, and at the slightest movement near them, sticking up their heads and swinging back and forth as if trying to reach something. And when we noticed them more closely, we observed that all the little fine black hairs that covered their tiny bodies before they went to sleep, had disappeared. These several changes are indications that the first age of the worm had passed—that they had shed their skins for the first time; or in other words that they had passed the first molting and had entered upon the

Second Age.

That we may be more certainly understood by new beginners, for it is for their instruction that we write, we will state here that the silkworm passes through five stages or ages from the time of hatching to the time of making its cocoon. The first age is from hatching to the first molting, and, under favorable circumstances—that is, in uniform warm weather and good feeding and care—the time of this age is from five to six days. The second age is from the first to second molting—a period of from four to six days. The third age is from the second to third molt-



Male Moth.

Female Moth.

We will give here a description of the appearances and changes of the worm as it approaches all the moltings except the first, which we described previously, so that even the new beginners can not fail to perceive when these changes are approaching. The first indication is that the appetite begins gradually to fail; and the worms seem inclined to rest or lay quiet. When fed they will stir up and crawl on the fresh leaves and eat a little, but soon leave off eating and crawls over the food, not in search of something to eat but for a spot for rest, and some leaf or stem to which to attach itself for a long quiet sleep. When these signs are noticed, feed very lightly and with very finely cut leaves, so as to let the bed of leaves become dry and in good

strong and vigorous and hungry, all other things being well. If the bed of leaves turn black under the surface at any time it is an indication that they are heating or fermenting and the worms should be got off of that bed as soon as possible.

Changing and Dividing.

We have as yet said nothing about changing the worms from one bed to another, so as to keep them clean, and dividing them up and spreading them out as they become too crowded by their growth. As a general rule the worms should be changed from the old bed about every other day. The best way to do this is, at the regular time of feeding, instead of giving them their food in its usual condition, cut fine, to select some very tender soft leaves and cut them up into strips, say half an inch wide, and lay them all over each bed of worms to be changed. As the worms

any given number of trees, we will state here the amount of space, say one hundred thousand worms or those hatching from about three ounces of eggs should occupy at the close of each age, and the number of pounds of food they will consume during each age.

One hundred thousand worms should be made to occupy, at the close of the first age, about twenty square feet of surface, and they will consume during that age about twenty-five pounds of leaves. During the second age they should occupy about forty feet of surface, and will consume about 75 pounds of leaves. During the third age they should occupy about 90 feet of surface, and will consume 230 pounds of leaves. During the fourth age they should occupy about 225 feet of surface and will consume 695 pounds of leaves. During the fifth and last age they should occupy about 500 square feet of surface, and will consume about 5,975 pounds of leaves, or 6,995 pounds in all.

It will be seen by the above that while the worms occupy but little space, and eat but little during the first half of their existence, during the last half they spread out very rapidly and eat very voraciously. So that while there is but little work to attend and feed them during the forepart of their lives, the work increases very rapidly during the latter. After each molting the worms may be feed once or twice before they are removed from the bed where they have deposited skins, but not more than that. The first feeding after molting

should be light and of tender food, as the worms are then weak and very hungry, and if fed too much then they are apt to hurt their appetites for food when they become stronger and should have good appetites.

Our Illustration.

In our issues of April 29th and of to-day we have given such information in regard to silkworms and their management, as should enable amateurs readily to experiment in this pleasant culture, and thus aid to develop an industry which promises to become one of vast importance to California.

To-day we supplement that information with the accompanying accurate and life-size representations of the silkworm, from the laying of the egg until it emerges from the caterpillar life, through the chrysalis to the moth that lays the egg—omitting only the 2d and 3d, and the 5th and 6th days of the 5th or last age—the regular growth during this stage being made sufficiently clear by the appearance of the worm during the 1st, 4th, 7th and 8th days of that age, which are given.

The illustration is so arranged, with marginal references, as to indicate the successive periods through which it passes, and at the termination of each of which it changes its skin, up to the close of the final age, when it begins to look about for some twig or other material to which it may affix its cocoon.

The progressive daily development of the egg is also shown from the time it is first brought into a warm atmosphere for hatching, until the worm makes its appearance. The time thus occupied is about six days, more or less accelerated or retarded, according to the temperature employed. It will be found interesting, and important also, to watch with a small magnifying glass, the gradual change in the color and general appearance due to the development of the tiny worm within the semi-transparent shell or skin of the egg.

The illustration which we herewith present, has been copied from *Appleton's Journal* for November, 1870, which is arranged for a medium period of 29 days. The instruction given in previous issues is ample, even for a person who has never witnessed the process, especially when studied in connection with the illustration here added. It would be well if every family, into which the Press finds its way, would procure a few eggs, and follow out, practically, the instructions we have given. It would afford a pleasant and instructive pastime, and could not fail to aid in increasing the general interest already being felt in every part of the country in the establishment of this important business on the Pacific coast.

POPULAR LECTURES.

The Greek We Speak.

[Prof. Martin Kellogg before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Fourth Series. Reported expressly for the Press.]

LECT. III. May 6.—Having spoken in the preceding lecture of the Latin element in the English language, Professor Kellogg was led naturally to consider next the Greek element. That the latter is not so important as the former in colloquial English, is not to be wondered at. Not, however, because the Greek language was so much older than the Latin and had already lost a part of its vitality before the formation of the English language began. It would be nearer the truth to say that Latin and Greek were contemporaneous,—that they sustained the relative of sisters rather than that of mother and daughter. But in Western Europe—the home of nearly all the original occupants or conquerors of the British isles—Greek was never so potent as Latin. Athens founded no world-empire. Greek was not carried across the Alps by the sword. It did not force its way into every household. But the great strength and wealth of the Greek language and literature were universally recognized by the better educated classes, even in the palmiest days of Rome. Virgil was the diligent student of Homer, and Cicero was not ashamed to learn of Demosthenes. The Greek language is the most wonderful creation in the world's linguistic history. It is a mine of unrivalled wealth, which none but fools would reject.

Earlier in the course, attention had been called to the importance of a knowledge

of Greek to the man of science, but in this lecture the chief aim was to show how much even the ordinary, everyday discourse of an English-speaking people is indebted to the language of the ancient Greeks. A few illustrations from the many given by the lecturer will be all that we have room for.

The Church.—The word church itself is of Greek origin, though not so obviously as many others. The Greek word which corresponds most nearly to our idea of church is *ekklesia*, which appears in ecclesiastical and its derivatives. An apostle (*apostolos*) is one sent; an epistle (*epistole*) is a message sent—a letter to the church. The words seat and denomination are of Latin origin; but the names of the different sects are drawn largely from the Greek. As, for example, Catholic (meaning universal); Episcopal, from *episcopos*, *epi* and *skopeo*, an overseer, the church whose head is a bishop or overseer. The Presbyterians are governed by the elders (*presbyteroi*). Even the word Bible is nothing but the Greek *biblos*, book, anglicized. Genesis (from *genao*) means creation; and Exodus (from *exodos*) the going out. Orthodoxy is from *orthos*, straight (or right) and *doxa*, opinion; heterodoxy from *heteros*, other than straight or right. "Orthodoxy is my doxy; heterodoxy is your doxy."

The School.—School is derived from *scholē*, leisure. The school then is a place where one has leisure to study. The alphabet is properly the A B of the Greeks (*alpha* and *beta*). Grammatical terms are largely of Greek origin, such as Orthography, Orthoepy, Etymology, Syntax (from *sun* and *taxis*—a putting together, hence that branch of grammar which treats of the construction of sentences), the comma, the colon, the period. Geography means a description of the earth (from *ge* and *graphēin*); hence the error of speaking of the "Geography of the Heavens."

Poetry and Music.—The word *poet* is entirely Greek, and means literally the maker, a significant illustration of the character of the ancient Grecian mind. Ode, Harmony, Melody, Rhythm, are all found in the Greek.

Politics.—From *polis*, city, comes a large class of words referring to cities and the management of affairs in cities. Annapolis is equivalent to Anna's city. Chrysopolis is a properly formed word, meaning Golden City; but Copperopolis is a barbarism in word-forming, an English and a Greek word being combined together into one.

Many of the illustrations given were accompanied with humorous allusions which will aid much in fixing them upon the mind of the Professor's auditors. In closing, Prof. Kellogg endeavored to impress upon his hearers the fact that these relations between English, Latin and Greek are not merely playthings to be handled by the lovers of the curious, but that the study of the so-called "dead languages," which are in reality still living in almost every sentence we utter, has a decidedly practical side for every one who uses English.

This lecture finishes Prof. Kellogg's series. The next will be by Prof. Pioda on the Utility of the Modern Languages.

The Activity of Vesuvius

Dr. Colton writes to the Boston *Transcript*, from Naples, under date of March 8th:

Last evening, as we came home from the opera, we saw the grandest spectacle yet presented by Vesuvius. A vast flame, or what appeared such, was issuing from the new crater, and the lava in two streams was pouring down the sides of the cone. Both these streams, I should judge, were five hundred feet wide. Looking across the bay in one direction we saw in the rippling water the red light reflected from Vesuvius, and in another the white light of the moon. The effect was strikingly beautiful. The lava as iron heated to a white heat, and the clouds of smoke and surrounding air were tinged with the red reflection.

Two ladies at our hotel visited Vesuvius to-day, and could only get as far as the Hermitage. They said a stream of lava was flowing directly toward them, and the constant thundering from the old crater was fearful. A stone over two feet in diameter was thrown out and landed near where their horses were hitched. They could see large stones constantly being thrown up. As I look at the crater this evening, I can occasionally see what appears to be red stars flying into the air. These must be immensely large, as we are twenty miles distant. Great anxiety is felt at the Hermitage for their safety, as the lava has commenced flowing down on this side of the mountain.

GOOD HEALTH.

Fat vs. Lean People.

Leanness, at least in the earlier ages, has been considered a reproach, rather than a merit, either in an individual or a nation. Pharaoh's lean kine were never held up as models to the graziers of any age or any country. Brutus was not so very much in the wrong when he entertained doubts about "that Cassius" with his lean and hungry look. The point of one of the bitterest of the many epigrams shot at Voltaire is blunted and rendered harmless by translation into a language where "death and sin" do not rhyme to "thiu." We cannot fancy a fat Macbeth, a corpulent traitor in Venice preserved, or an obese Iago are impossibilities. Assuredly, Falstaff was not scrupulously honest or honorable; but what was he, after all, but a merry rogue? Plumpness and beauty have been regarded as inseparable Siamese twins, from the illustrious regent whose ideal of female loveliness was summoned up in "fat, fair and forty," to the Egyptians who fattened their dames systematically by making them sit in a bath of chicken broth; the etiquette being that the lady under treatment is to eat, while sitting in the broth bath, one whole chicken of the number of those of which the bath was made, and that she is to repeat both bath and dose for many days. A doubt, one should think, must have sometimes arisen, whether the beauty thus in training would fatten or choke first.

As to the question of who would be most likely to sink or swim, on getting into hot water or falling upon troublesome times, the lean person would have no chance against the fat one. Byron certainly, fretted over his increasing bulk; and the same gracious prince who admired rotundity in his favorites, had such a horror of the consciousness of his own corpulence, that "Who's your fat friend?" was the most severe aside-speech that poor, discarded Brummel could make in revenge for being out by his former patron.

A book has been written by a Dr. Dancel, of Paris, in which to be or not to be fat is treated as the grand question of human life. The epitome of welfare is leanness; while the origin of evil, nay, evil itself, is fat.

It appears, that it is only a vulgar error to believe that an increase of what is called good pligh is any symptom of improving health. As an over-sanguine temperament is dangerous; as daily accidents occur from the undue predominance of the nervous system, so does the extraordinary development of the fat cause first inconvenience, then infirmities, and finally constitute a malady hitherto considered incurable, and known as obesity. To men, it is true, personal grace is not indispensable to happiness; but with women the case is different. Dr. Dancel reminds them that when once they have lost their personal attractions, intellectual treasures serve merely to render them just supportable in society.

Fat has ruined the prospects of many a man, as of many a woman, by rendering it impossible to continue a profession which affords them an honorable livelihood. Persons who live by mental labor find their faculties clouded by the increase of the corporeal substance; and literary men—but there is no need to consider that eventually, because it is too outrageous a supposition that a man who earns his bread by his pen should ever have the time to grow rotund and ponderous. With publisher the case is different; often the publishers sucks the marrow, while the author is left the bones for his pains. At one epoch, the Romans, not caring to give room to useless individuals, banished those of their fellow citizens who were guilty of the crime of corpulence.

But all this is mere nothing. Such misfortunes are only slight and few. Thus, *embonpoint* is a common cause of sterility, both in man and beast. A fat queen may cause an ancient dynasty to become extinct, for want of an heir to the throne. The very peasants sell off their fat hens, as unproductive of eggs. Even over-luxuriant plants produce no flowers, or barren ones. Excess of fat causes the human epidermis to crack, mottling the skin with white speckles and streaks; it induces hernias of various distressing forms; it is the parent of ulcerated legs; it gives rise to headaches, giddiness and dimness of sight. In short, among the infinity of causes which originate disease, a bloated habit of body takes conspicuous rank, although modern medical works bestow but little notice on this morbid disposition.

Dyspepsia.

Dr. A. O'Leary lectured recently at Cooper Institute, N. Y., on "Dyspepsia." "Indications of the disturbances of the stomach, are," he said, "caused by the fermentation of food. No one should eat cabbage boiled with meat, or onions with the stalks, as they create biliousness. Cabbage is one of the best articles of food when properly cooked. It should be boiled in pure water. As a cure for dyspepsia a teaspoonful of carbonate of soda, which neutralizes the acid in the stomach is recommended. The causes of dyspepsia are the use of butter, grease, gravy, and eating hastily. Dyspepsia does not come from largo eating. Those afflicted with it should take a short sleep after dinner. The liver has much to do with dyspepsia. Whenever the white of the eye shows a yellow tinge, it proceeds from the liver; tenderness in the pit of the stomach is an indication of a diseased liver. A slight pain under the right ribs and back to the shoulder blade, also proceeds from the liver. Those that are prone to this disease should not sleep too much, or enjoy too much heat—too much heat tends to enlarge the liver. Fruit and vegetable diet is the best that can be adopted, but persons of a weak constitution should add to it meat once a day, but not oftener, with bread, properly made. Persons affected with dyspepsia should not use calomel. Turkish baths are recommended, as they relieve the liver."

What Goes into Your Stomach.

"I have often wondered what the stomach must say to itself while an ordinary meal is coming down. This stomach knows perfectly well what it needs. It asks at breakfast a moderate piece of steak, a slice or two of good bread, and a baked potato. Now, just stand by and see what goes down. First, a great mass of greasy buckwheat cakes, now a swash of scalding hot coffee, again buckwheats, more coffee, sausage, hot biscuit saturated with melted butter, huckwheats, coffee sausage, hot biscuit, and so on and so on for half an hour. And here we have an enormous mass of hot, greasy, doughy, indigestible stuff swimming in hot coffee. The stomach asks at dinner roast beef or mutton, with bread, potatoes and other vegetables. Now, what is the conglomeration that comes rushing down that red canal. Turtle soup, fish, beef, duck, plum pudding, pie, nuts, raisins, coffee, and several condiments; with this hotch-potch, ice water, ice cream, and wine. For supper the stomach asks for nothing, and gets hot biscuit, butter, cake, preserves and strong tea."—D. Lewis.

To REMOVE CORNS.—First, remove the pressure or friction of the shoe which occasioned the corn. Second, keep it moist long enough, and it will drop out of itself or can be easily picked out with the finger-nail; and if it ever comes again, repeat the process. Lockjaw has frequently followed cutting hard corns; at other times convulsions and death. This risk ought never to be run as long as a hit of cotton saturated with water, or sweet oil, or, better still, glycerine, which is the essential element of sweet oil, is a safe, certain, and efficient cure for hard corns, if kept constantly applied for a day or two, and no shoe is worn.—Dr. Hall.

WATER DRINKING.—A certain amount of water is necessary to carry on the functions of the animal economy. During the season of active perspiration, the quantity is considerable. When shall this water be taken into the system? It may be introduced during the day, when thirst requires; but it is a capital practice to introduce a quantity on first rising in the morning, and on going to bed at night. Thousands of dyspeptics have derived signal relief by drinking one, two or three tumblers of water on rising in the morning, and on going to bed at night. I have sometimes thought, on hearing the testimony of these dyspeptics in regard to the influence of cold water thus taken into the stomach, that, perhaps, of all baths, this is the best.—Dio Lewis.

SLEEP will do much to cure irritability of temper, peevishness, uneasiness. It will cure insanity. It will build up and make strong a weary body. It will do much to cure dyspepsia, particularly that variety known as nervous dyspepsia. It will relieve languor and prostration felt by consumptives. It will cure hypochondria. It will cure the headache. It will cure neuralgia. It will cure a broken spirit. It will cure sorrow.

The Bailey Roasting Furnace.

We illustrate to-day a roasting furnace which comes originally from Nevada. The inventor is the agent of the Big Smoky mill, at White Pine, and is known to many of our readers as the inventor of the Bailey revolving cylinder furnace now in use at the mill named. A series of experiments with a small furnace of the kind here illustrated was so successful, that he has had a larger one erected in this city for work on a larger scale.

Fig. 2 shows a longitudinal section of the furnace, and Fig. 1 a cross section (on a larger scale) through one of the fire-places. The letters in both figures refer to the same parts.

A pipe of cast iron, *A*, conveys the pulp from the battery to a fan, *B*, which, by its revolution, sucks the pulp in through *A*, and forces it through the pipe, *C*. This fan is placed at the side of a fire-place, *I*, as shown in the cut, from which it draws in the heat and flame, and thus exposes the ore to an intense roasting influence in its passage through *C*. The arrows denote the direction of the current of pulp, etc.

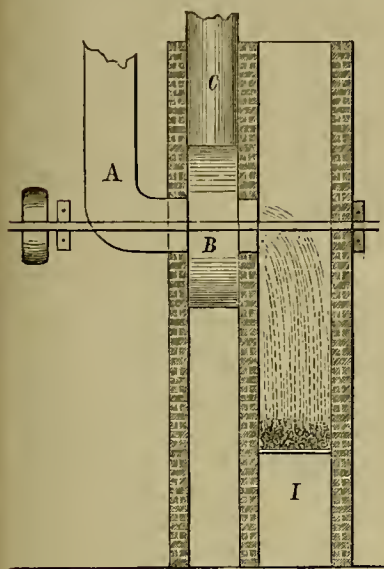


FIG. 1—CROSS SECTION.

To aid the action and secure a more perfect roasting, the pipe, *C*, is curved at the top and leads to another and larger fan, *D*, similarly placed with regard to a second fire-place, *I*. Thence the pulp is forced under like influences through the larger pipe, *E*, up and over into a sheet-iron chamber, *F*, of the form indicated, which may be placed over amalgamating pans, *G*, if desired, and where the roasted ore is caught and retained until needed for further treatment. In order to catch and save the fine dust, chlorides, etc., a third pipe leads from *F* into a water tank, *H*, as shown.

In the furnace erected in this city, the fan, *B*, is 20 inches, the pipe, *C*, 5 inches, the fan, *D*, 30 inches, and the pipe, *E*, 7 inches in diameter. The dimensions, we are given to understand, may be modified to some extent, and it may be found desirable to add another fire-place for certain varieties of ore. Mr. Bailey has also tried letting a small stream of steam into the pipes with, he thinks, good results in desulphurizing. Where the ore is to be treated to a chloridizing roasting, the salt is added in the battery.

The furnace acts somewhat after the principle of the blowpipe, and regulating the speed of the fans, the openings into the fire-places, etc., the process can be modified as desired. In the original experimental furnace at the Big Smoky mill, where rude 4 and 12-inch fans and 2-inch gas pipe were used, Mr. Bailey informs us he chloridized up to 96 per cent.

The claims made for this furnace are principally, and briefly, as follows: that it utilizes all the products of combustion,

saves all the dust and condensable matter volatilized in roasting, saves all manual handling of the ore after it has been fed into the battery, is adjustable to suit all kinds of ores, is cheap, efficient and easily transported from place to place, and can be used with advantage for conveying ore, not required for roasting, in place of other apparatus.

The furnace built at the machine shops of Garcia & Periam, in this city, contains less than 1,000 lbs. of iron, and 600 brick. The pipe is made in sections, so as to be conveniently handled. The estimated capacity is equal to that of a 10-stamp mill; the estimated cost is \$1,500 to \$2,000. It is especially recommended where Küstel's lixiviating process is used.

Mr. J. W. Bailey, the inventor, has had long experience in milling, and his furnace is the result of years of practice in

borax, melting with oxide of copper, or the addition of corrosive sublimate (bichloride of mercury) to the melted gold. The two former of these plans are troublesome, from the corrosive action they exert on the crucibles; and the last (namely, the employment of corrosive sublimate, which is that usually adopted) is most objectionable, from the dense and highly injurious fumes evolved.

In Victoria, this is regarded as so serious a matter, in a public and sanitary point of view, as to have induced the Municipal Council of Melbourne to institute an action at law against the Union Bank, to compel them to abate the nuisance thus created by their gold-melting establishment. The passage of chlorine gas through the melted gold is found to effect the complete toughening of the metal by the elimination, as volatile chlorides, of the materials which render it brittle, while the evolution of the deleterious mercurial fumes is avoided.

In the metallurgic treatment of the

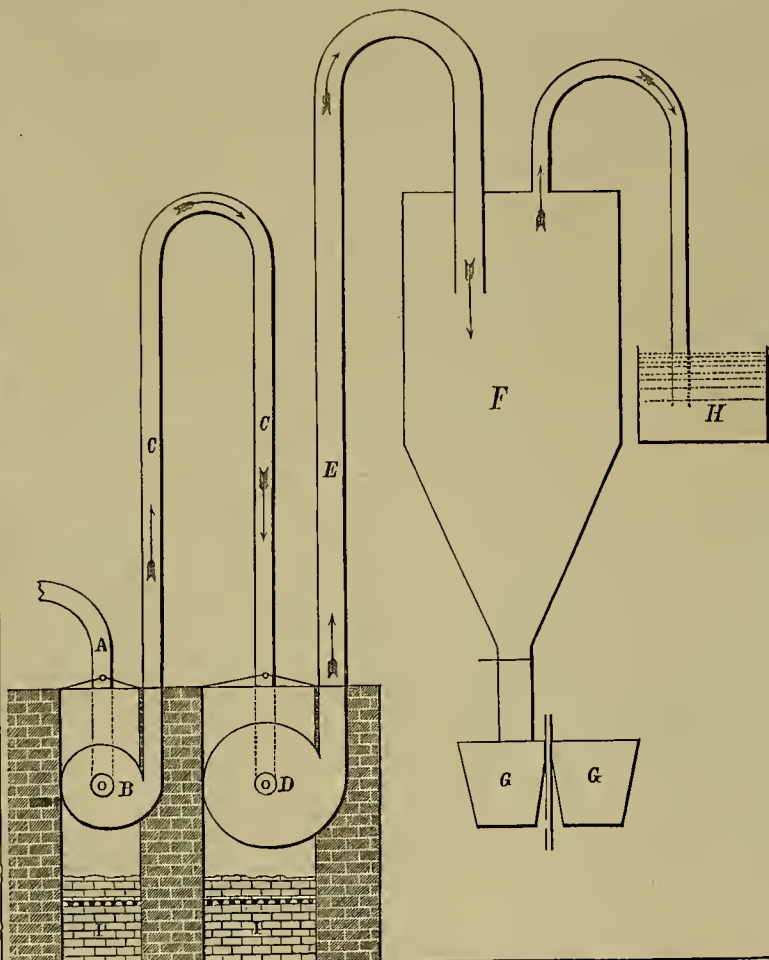


FIG. 2—LONGITUDINAL SECTION—BAILEY FURNACE.

treating rebellious ores. He will soon invite parties interested in such matters to witness his process. Letters to him should be addressed care of McDonald & Whitney, San Francisco.

Refining Gold by Chlorine Gas.

(Continued from page 278.)

The Manager of the Bank of New South Wales has kindly allowed me the use of 500 ounces of Queensland gold to illustrate this paper. This quantity was divided into two nearly equal parts: one portion, weighing 248 ounces, was left in its original unrefined condition, as seen in ingot on the table; the other portion, weighing 252 ounces was refined in the manner described above, and the resulting bar of fine gold, assaying 995, is placed by the ingot for comparison, and the silver extracted, weighing 38.8 ounces and assaying 991.1, lies beside it.

Besides the separation and recovery of the silver as above described, another useful end is gained by this process.

A very large proportion of the gold of Australia (more especially that obtained by amalgamation from our quartz-veins) is more or less brittle—an effect generally due to the presence of small quantities of lead or antimony, rendering the bullion quite unfit for coinage or manufacture until it has undergone some process to render it tough.

The methods usually employed for this purpose are either fusion with nitre and

precious metals, some loss is always sustained; but that incurred in the process here described is not found to be excessive.

The average loss of gold in operating hitherto has been found to amount to 19 parts in every 100,000 of alloy treated, which is considerably less than would be met with in toughening an equal amount of gold with corrosive sublimate in the ordinary manner.

The loss of silver has amounted to 240 parts in every 100,000 of alloy operated on (containing, originally, say 10 per cent. of silver). There is no doubt that a considerable portion of both these losses would be recovered on further treating the pots and ashes remaining after the operation; and it is found that, as manipulatory skill is acquired, the proportional loss of silver appears to be decreasing. In refining, on the large scale, gold containing 10 per cent. of silver, the cost of the operation in Sydney, including labor and the above loss of premises and superintendence, is about five farthings per ounce, but varying with the quality of silver present in the alloy operated on.

In England, where hydrochloric acid is a waste product of alkali-works, and all apparatus is cheaper, the cost of refining by this method would be proportionally less. The fineness of the gold produced by this process varies from 991 to 997 in 1,000 parts, the average, as found on a refining of many thousand ounces, being

993.5, or 23 carats, 3½ grains. The remaining 6½ thousandths are silver; and this compares favorably with any of the previously known practical processes, none of which leave less silver than this in the resulting fine gold.

If the refined gold be subjected to a refining by chlorine, the amount of silver left in it can be reduced to 0.2 per cent., just as in the refining by the ordinary sulphuric acid process the same result can be obtained by subjecting the refined gold to a further refining with bisulphate of potash. For practical working, however, this would probably never be attempted.

The silver resulting from this method of refining is tough, but its quality varies somewhat according to the gold originally operated on; if the alloy treated contains much copper, the greater part of this remains with the resulting silver, but the other metals are nearly all eliminated.

The fineness of the silver hitherto obtained has varied from 918.2 to 992.0 in 1,000 parts, the average being 965.6. Analysis of the silver resulting from the refining of gold known originally to have contained among the base metals in the alloy, copper, lead, antimony, arsenic, and iron, gave the following results:

Silver.....	972.3
Copper.....	25.0
Gold.....	2.7
Zinc and iron.....	traces
	1,000.0

A very extended series of experiments have been made at the Sydney Branch of the Royal Mint to test the value of this process; and the result has been (as mentioned by the Hon. the Colonial Treasurer, in his speech on the Budget, October 14th, 1869), that "active steps are now being taken to bring the system into operation" in that establishment.

TAP FOR SMELTING FURNACES.—The Eureka (Nevada) *Sentinel* has seen a new "Sub-Surface Inverted Siphon Tap," at the furnaces of the Eureka Consolidated. A tube is run at an angle through the lower portion of the furnace wall so as to reach nearly to the bottom of the molten metal. As the metal rises in the furnace, it rises also in the tube, and overflows into a proper kettle at the discharge end of the pipe. The result of this method of tapping is said to be, by actual tests, that the furnace runs better, the lead comes out purer, the formation of "sows" is prevented, and the work of the smelters is lightened. The description does not fully show the applicability of the name. The inventors are Messrs. Keyes and Arents, superintendent and metallurgist of the works.

A NEW STEAM ENGINE GOVERNOR of great simplicity, and one which is claimed to be more durable and effective than the ordinary steam governors, can be seen at the Engine and Governor Works of Caldwell & Co., No. 113 Beale street, this city. This governor has two hinged arms extending upward from the sleeve which controls the steam valve, one upon each side of the spindle. Each of these arms carries at its upper end an ordinary governor ball. A flat steel spring, which is supported at its middle upon the top of the spindle, curves downward at each side, and has its opposite ends hinged to the upper surface of the balls. By the employment of the curved steel spring, it is claimed that the governor is rendered more sensitive and the supply of steam uniformly regulated, while its great durability renders it much superior to the usual spiral spring of the Pickering governor.

STEAM WAGON FOR CARIBOO.—On the 21st ult., the first road steamer left Yale for Cariboo with a load of 10 tons, amid great rejoicing. Finding that it could easily draw a much larger load, the steamer returned for additional wagons, and was to start again the next day.

TAMMANY DAY FESTIVAL of the Improved Order of Red Men was to be celebrated on Friday of this week (the day we go to press), at New Saucelito. We return thanks for our invitation, and doubt not that the celebration will have passed off very pleasantly by the time our readers have received our paper.

DOMESTIC ECONOMY.

Hints for Housekeepers.

One of the highest and most important duties of the housekeeper is to preserve the health of her household, and to do this she must carefully study the methods by which food can be made palatable, without being too rich for the stomach. In the first place avoid frying; broil your steaks and chops invariably. Cook vegetables so that they will retain their natural flavor; do not drown them in melted butter, which is one of the most indigestible and unhealthy ingredients. If one portion of a dish of vegetables be hoiled in pure water and the other in water to which a little salt has been added, the latter will be found better flavored and more tender; if potatoes, they will be mealy. Onions are especially improved by being cooked in salt water. Their rankness of odor and flavor being mitigated or modified by this process. Green peas and shelled beans should be hoiled in soft water. Hard water may be made soft by the addition of soda. If potatoes boil too rapidly they are apt to fall to pieces, which spoils the appearance of them on the table. Many sorts of potatoes are liable to this defect, even when all the care possible has been taken. When this occurs remove the pot from the fire about ten minutes before they are done, and let them stay on the stove until cooked. In this way the most untractable potatoes may be rendered slightly and boiled without breaking. Avoid the common error of using so many eggs as to make pastry, pudding, etc., tough instead of light. When you see six, eight or ten eggs put down in a receipt for an ordinary sized pudding or cake (unless it is a rich plum cake or pudding), make up your mind the receipt is a bad one, and should not be followed.

How to UTILIZE STALE BREAD.—Soak the bread in cold water. When soft, pour the water off; then to each quart of bread add a pint of flour. Stir into a batter and bake like huckwheat cakes.

GOOD HAMS.—After hams have been smoked take them down and rub the flesh part with molasses, then immediately apply ground and powdered pepper, by sprinkling on as much as will stick to the molasses when they must be hung up again to dry. Hams treated in this manner will keep perfectly sweet for two or three years. This must be done before the fly deposits its eggs, for after this is done nothing will stop their ravages. Try this plan if you want good sweet hams.

To Prepare Lambskins for Ladies' Overcoats.

A correspondent of the New York Tribune gives the following process for preparing lambskins for clothing material:—"Make a strong suds with hot water; let it get cold and wash the skins, squeezing them carefully to get out all the dirt from the wool; wash the soap out with clean, cold water, and cover them with water for twelve hours; hang them over a pole to drain; when partially dry, stretch them carefully on a board, and when a little damp, sprinkle on them an ounce each of pulverized saltpetre and alum; lay the flesh sides together, and hang in the shade for two or three days, turning them over every day to bring the under skin uppermost, till they are perfectly dry; then scrape the flesh side till all scraps of flesh are removed; rub with pumice or rotten stone and with the hands; then lay the cloak pattern down on the flesh side of the skin, trace it round with a pencil, and cut it out with a sharp knife; overcast the edges together on the wrong side, and line with quilted silk. No collar, fur, or trimmings, is worn with an astrachan or lambskin cloak."

Cotswold, Leicester and other long-wool pelts, prepared in this way, and lined and trimmed with some bright material, will be found comfortable, and quite useful in almost every household.

GIRLS AND BUTTER.—Mrs. D. B. Long lately read an essay before the Kansas farmers' club on the making of Butter, in which she "hit the nail on the head" by saying—"Girls must educate themselves for these duties if they expect to make successful housekeepers and always have a good article of butter on their tables, as everybody, ought to have. It is always relished better by the guests if they understand that the hostess manufactures it herself."

Beans without Pork.

The usual way people cook beans is to parboil them; put them in a kettle or pan, and set them in the oven with a chunk of fat pork in them. The grease bakes out into the beans, making a most unwholesome and indigestible mess, destroying all the good flavor of the beans. Now, a method for cooking them recommended by a correspondent of the *Rural New Yorker* is as follows: Parboil as usual, putting in salt to suit the taste. Then put them in a pan and set in the oven to bake, putting in a piece of good, sweet butter. Bake until tender and nicely browned over on top. Beans are very nutritious; and cooked in this way are palatable, digestible, and can be eaten by any one.

Beans with Pork.

If you insist on having pork with your beans, the best way to cook them is as follows:—Pick over a quart of beans, put them to soak over night. Put them to boil next morning, throwing off the water just before boiling point. Cover with cold water again, put in a square pound of nice, sweet, salt pork, and let them both boil together till the beans are tender. When the beans are done, the water should have all become absorbed; they are then put in one pan to brown, and the pork in another, scoring the latter first, through the skin. Before serving, set the pork in the center of the beans. Serve with pickles and horse-radish.

Utilizing Sorghum Seed.

A correspondent of the *Rural World* has been utilizing the seed of the sorghum, the method of which he describes as follows:—We raised, as usual, a small patch of sorghum the past year (a yellow seeded variety); it made a very fine quality of syrup, and the seed has proved, when ground and bolted, to make a good article of flour for pancakes. We were led to the experiment by a neighbor who sent us a few quarts of the flour. When properly raised and baked they are equal to huckwheat, and I think more easily digested. The flavor cannot well be improved; the cakes do not have the tough, feathery consistence of buckwheat cakes, and I cannot see why it (the flour from sorghum seed) should not become a common article of food. We had thrown it to the hogs heretofore, as soon as the seed was separated from the cane at the mill; this is but one of our heedless wastes of the hountiful productions of a kind Providence. How much better to carefully save the seed at the proper time and have it ground, when it will make an excellent slop for the cows or hogs; or cooked, will be fine for hogs or hens. I have no doubt but in the single State of Missouri there has been enough of this seed wasted in a single year, which, if saved and properly used, would have been many thousands of dollars to the producers.

MESSENGERS. EDITORS:—The entrails in dressing sheep for mutton may cause the rank flavor, by tardy removal at the hutcherie, as you quote from the *Agriculturist*. But the most successful mutton renders of Philadelphia say:—"Be careful, in skinning, not to permit the woolly side of the hide to have contact with the carcass, and the meat will never be rank."

Our correspondent makes an important suggestion, omitted by the writer in the *Agriculturist*. The fleece of the sheep contains about half its weight of a semi-viscid, oily substance, known as "yolk," to which is due the peculiarly unpleasant odor of sheep and unwashed wool. The slightest contact of the wool with the flesh, in the process of skinning, must leave upon it a small portion of this oil, the odor of which will be rapidly diffused over and through the flesh.

HOSPITALITY.—To press people to eat more than they wish is vulgar hospitality. Excess of ceremony shows want of good breeding. That civility is best which excludes all superfluous ceremony.

When invited to partake of another's hospitality, and the invitation is accepted, be punctual in meeting the engagement. If unforeseen circumstances prevent the engagement being kept, immediately notify the person by sending an explanatory note.

There is no social duty which the Supreme Lawgiver more strenuously urges than hospitality and kindness to strangers. The perfection of hospitality entertainment is to offer the best to visitors; show a polite regard to their wishes; give precedence in all matters of comfort and convenience."

Domestic Receipts.

MOTHS IN CARPETS may be conquered in this way: Take a coarse crash towel, and wring it out in clean water, and spread it smoothly on the carpet, then iron it dry, repeating the operation on all suspected places, and those least used. Then, by placing a few crumbs of sulphur under the edges of the carpet, the result is accomplished.

MOSQUITOES.—A camphor bag hung in an open case will prove an effectual barrier to their entrance. Camphorated spirits applied as perfume to the face and hands will prove an effectual preventive; but, when bitten, aromatic vinegar is the best antidote.

COFFEE CAKE.—Five cups of flour, one cup of made coffee, one cup sugar, half cup molasses, one cup of butter, one teaspoonful soda, two teaspoonfuls of cinnamon, one of cloves, raisins or currants.

Approved Cosmetics.

Glycerine Balsam.

This is designed to whiten and soften the skin, remove roughness, chaps, chilblains, and irritations from common causes.

Take white wax (pure).....1 ounce.
Spermaceti.....2 ounces.
Oil of Almonds.....3 "

Melt together by a moderate heat in a glazed earthenware vessel, and add

Glycerine (best).....3 ounces.
Balsam of Peru.....½ ounce.

The mixture is to be stirred until nearly cold, and then poured into pots. [Instead of balsam of Peru, 12 or 15 drops of otar of rose may be employed.]

Balsam of Honey.

Take fine pale brandy.....4 ounces.
Glycerine.....1 ounce.

Mix by a gentle heat; when cold add

Alcohol.....1 ounce.
Essence of ambergrces.....6 drops.
Citric acid.....3 drachms.

This is intended to remove freckles and discolorations, as well as to improve the general appearance of the skin.

Cold Cream.

Take white wax } of each.....1 ounce.
Spermaceti }
Oil of almonds.....¼ pint.

Melt, pour the mixture into a Wedgewood mortar which has been heated by being immersed in hot water; add gradually

Rose water.....4 fl. ounces.

and stir until an emulsion is formed, and afterward until the whole is nearly cold. Put in pots. It may be perfumed with bergamot or lavender.—*Druggists' Circular*.

Mechanical Hints.

OILING NAILS.—Every one knows the difficulty experienced in driving old nails into hard wood—it may not be so generally known that moistening the point with spit-tle or, better still, with oil, will enable one to drive them much more easily. Again, old nails soon become loose when driven into soft wood; this is caused by the rust which acts also upon the wood, rendering the fibre brittle or rotten. To prevent this, place the nails for a few minutes in hot grease, which will penetrate under the scales of the rust, and if the nail is soon after excluded from the air by being driven into wood, it will effectually arrest the rusting process, and it will hold as well as a new nail—moreover it drives much easier. Anything which is kept from the air may be preserved almost indefinitely. When nails are driven, it is economy to paint over their heads, when it will not pay to paint the whole surface—the paint excludes the air.

TO PREVENT THE CRACKING OF WOODEN INSTRUMENTS.—Put them in a vessel of melted paraffine, and keep the temperature of boiling water until the air bubbles cease to escape from the pores of the wood. Then as soon as cooled, sufficient to handle, rub briskly, while yet warm, with a dry cloth.

TO CLEAN A GUN.—First take the barrels off the stock; then take enough vinegar to fill the barrels, and heat it boiling hot; pour it into the barrels, and let it stand until it stops foaming over at the muzzle, letting some run through the tubes; then take the cleaning rod and rub the inside of the barrels; then take water, hot enough to warm the barrels, and rinse out until the water is perfectly clear; then, with the cleaning rod, wipe the gun out perfectly dry, after which put a little sweet oil on a bit of cloth, and rub on the barrels, both on the inside and outside, and your gun is clean. The vinegar removes all stains and smut, and the water and oil prevent it from rusting, or hurting the gun in any way.

LIFE THOUGHTS.

A BLUSH is the complexion of virtue. MORE men fail for want of energy than for want of ability.

THE crown of all real manliness—of all Christian manliness, is purity.

SEE the sack open before you buy what is in it, for he who trades in the dark asks to be cheated.

THINK before you speak, and you will never be mortified with yourself, nor cause a thrill to flush through the face of a friend.

HE that can please nobody is not so much to be pitied as he that nobody can please.

ONE of the most important rules of the science of manners is an absolute silence in regard to yourself.

HAVE frank explanations with friends in cases of affronts. They sometimes save a perishing friendship; but secret discontent and mistrust always end badly.

VIRTUE.—Without virtue there can be no true happiness; but we want love joining with virtue to give us all the good which this world is capable of bestowing.

A BENEVOLENT HEART.—The best heater to resist winter with is a benevolent heart. Those who have tried improved stoves and failed, will please to remember that a load of wood given to a poor person warms you almost as much as it does him. Try it.

OATHS are vulgar, senseless, offensive, impious; like obscene words they leave a noisome trail upon the lip, and a stamp of odium upon the soul. They are inexcusable. They gratify no sense, while they outrage taste and dignity.

SATISFY YOUR CONSCIENCE.—Seek not to please the world, but your own conscience. The man who has a feeling within him that he has done his duty upon every occasion, is far happier than he who hangs upon the smiles of the great or the still more fickle favors of the multitude.

Life's Trials and Rewards.

Many persons are afraid of their trials. It would be wiser to fear their mercies. They are in more danger from their friends than from their enemies; from their comforts than from their crosses; from their health than their sickness. They often desire our prayers when they come into affliction, but they need them most when they are coming out of it, and are returning into scenes of danger and temptation again.

A holy life is made up of a number of small things. Little words, not eloquent speeches or sermons—little deeds, not miracles, nor battles, nor one great, heroic act or mighty martyrdom, make up the true Christian life.

Many men attend the Gospel to secure themselves reputation, business or friendship. This is trading in divine things. And what is the hope of the hypocrite, though he has gained, when God taketh away his soul?

Many there are who do not desire to be made whole, because being made whole would involve their losing their present position in society, they do not wish to part with their ungodly gains or wicked companions.

EARN YOUR DAILY BREAD.—Earn your comfort, earn your pleasure, earn your social blessings, earn your privileges as a citizen, earn everything you have by giving a fair equivalent for it. Be ashamed to hold anything that you have paid nothing for. Or, if you have been left property that you have paid nothing for, take it, and give an equivalent for it in the using.

LABOR.—It is to labor, and to labor only, that man owes everything possessed of exchangeable value. Labor is the talisman that has raised him from the condition of the savage; that has changed the desert and the forest into cultivated fields; that has covered the earth with cities, and the ocean with ships; that has given us plenty, comfort and elegance, instead of want, misery and barbarism.

GREAT MINDS.—Great minds had rather deserve contemporaneous applause, without obtaining it, than obtain without deserving it; if it follow them, it is well; but they will not deviate to follow it. With inferior minds the reverse is observable; so that they can command the flattery of knaves while living, they care not for the execrations of honest men, when dead. Milton never aspired to present fame, nor even expected it; but (to use his own words) his high ambition was, "to leave something to after ages, so written that they should not willingly let it die." And Cato finely observed, he should much rather that posterity should inquire why no statues were erected to him than why they were.

The New York Society of Practical Engineering.

This Society held its usual monthly meeting in their room in the Cooper Union Building, on Thursday evening, April 26. President, J. A. Whitney, in the chair.

Tensile Strength of Wrought Iron Rods.

Prof. Plympton read a paper giving the details of a series of experiments, which were carried on under his observation, to test the tensile strength of wrought iron rods, and also to determine their limit of elasticity. After giving a description of the testing apparatus, the writer made known the following interesting results:—

The breaking strain of wrought iron rods of from $\frac{3}{4}$ to $1\frac{1}{2}$ inches in diameter was from 40,000 to 57,000 pounds per square inch of cross section, the strength being slightly greater in the small than the large sizes. The limit of elasticity may be considered about three-fifths of the breaking strain. The extension of rods below the limit of elasticity for fibrous iron was one 180th of the length.

For strains below the limit of elasticity, the extension of the rod was proportioned to the strain. Above this limit, the extension increased in a higher and greatly varying ratio. The permanent set of every overstrained rod was its greatest length minus the extension it showed before the limit of elasticity was reached. The factor of safety usually employed is one-fifth the breaking strain, this being well within the limit of elasticity. It may be considered quite safe to test such rods, before using, to double the strain allowed in construction, or to two-fifths of the breaking strain. Under this limit of strain iron rods could last for ever, were it not for outside corrosion.

Determining the Amount of Water in Steam.

Mr. Leicester Allen then read an interesting paper on a method of determining the percentage of water held in suspension in wet steam, or steam delivered from boilers that prime. This peculiar method is based upon the fact that steam at 212° contains 1,178 heat units per lb., and water at the same temperature 212 units of heat per lb. Therefore, knowing the amount of heat issuing from a boiler in a pound of wet steam, the proportions of water and steam in the pound can be readily determined. The apparatus which Mr. Allen devised for this purpose, consisted of a scale beam with a platform at one end and a counterpoise at the other. On the platform was placed a copper vessel thickly covered with felt, this covering being surrounded by another copper can. A standard thermometer with large bulb is set in the inner or water chamber, and its shaft projects outside of the chambers with a very easily reading scale attached. A finely perforated copper pipe serves to induct the steam into the water chamber. In the bottom of the chamber is an escape pipe.

To use this machine, five pounds of water are placed in the chamber through a funnel pipe in the top. The water is then raised to a temperature of 80°, by admitting steam through the coiled induction pipe. The surplus water, added by condensation, is drawn off through the escape pipe, leaving in the chamber five pounds of water at 80°, containing 400 units of heat. A sliding weight is then set along the beam to 5½ pounds, and the steam to be tested is then allowed to flow in until the beam balances. Then the influx of steam is stopped, the thermometer is read, and the actual proportion of water held in suspension is determined.

GOLD IN BULK.—The Auburn Stars and Stripes of May 4th says: Last Sunday a Chinaman brought in and sold to Hubbard & Andrews a small slug of solid gold, about an inch wide, an inch and a half long, somewhat thicker than a twenty-dollar piece, weighing about \$23, which bore evidence on both ends that it had been chiseled or chopped with a dull instrument from a solid mass of the same material. For about 18 months different Chinamen have at irregular intervals brought in and sold to the same firm blocks of gold bearing similar marks, weighing \$40, \$50, \$100, and as high as \$200 each. Where they come from is a mystery, but there seems to be pretty fair grounds for believing that somewhere in this vicinity our Celestial friends have found a gold deposit such as most old miners have dreamed of, but which few have ever seen.

Sewing Machine Improvement.

A great objection has been urged against the use of sewing machines from the fact of their use being very detrimental to the health of the operators. It is for this reason that such persistent efforts have been made to devise some ready mode of operating these machines by the use of some other means than foot-power.

The Mill's Adjustable Treadle has recently been devised and applied to the Howe Sewing Machine, which is said to remedy the evil complained of by a simple modification in the manner of constructing and adjusting that portion of the machine. This invention has been brought to the attention of a large number of physicians, who appear to be unanimous in the opinion that what is claimed for it has been secured.

The peculiar feature of the new treadle consists in making the foot-board so adjustable, both vertically and longitudinally, that whatever the size of the foot or shoe, the true center of motion of the foot may also be brought to coincide with the center of motion of the treadle, and so held in place—thus permitting the feet to move on their natural centers, without having to overcome the weight and inertia of the heavier limbs. In another column will be found a certificate from no less than fifteen of the leading physicians of this city, expressing their opinion that the use of a sewing machine, with this treadle attached, so far from being prejudicial to the health of the operator, will be not only harmless, but positively beneficial as a physical exercise tending to develop the muscles of the lower limbs, strengthen the ankle and impart elasticity to the foot.

The authority referred to is the best that can be obtained—all, indeed, that could be asked, and if this improvement accomplishes the ends certified to the inventor, it ought to receive the warmest thanks of the community and a fortune besides. This improvement may be seen and examined at the Howe Sewing Machine office, No. 113 Kearny street, in this city.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

W. H. MURRAY—Eastern States.
M. B. STARR—Pacific Coast.
THOS. POYER—California.
WM. J. CLARK—California.
S. H. HERRING—California.
L. P. MCCARTY—California.
E. P. HICKS—California.
A. O. KNOX, City Soliciting and Collecting Agent.

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-bp-ft

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care J. H. GILMORE, San Francisco.

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Out Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st 70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4jy72, that he has paid to the 4th of January, 1872; 4j10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publisher.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]

SAN FRANCISCO, Thursday, May 12.	
SOLE LEATHER.—The demand is still equal to the supply, and prices firm.	
City Tanned Leather, ½ doz.....	25 00
Santa Cruz Leather, ½ doz.....	28 00
Country Leather, ½ doz.....	25 00
French Calf and Kip Skins still continue firm, with a slight advance in price, and the best brands of Kips. Domestic Skins rule the same.	
Jodot, 11 to 19 Kil, per doz.....	\$82 00 @ 96 00
Conchellian, 16 Kil, per doz.....	12 00 @ 12 00
Oregon Calf, ½ doz.....	54 00 @ 54 00
Mercier Calf, 16 Kil, per doz.....	63 00 @ 63 00
Jodot, second choice, 11 to 15 Kil, ½ doz.....	88 00 @ 88 00
Common French Calf Skins, ½ doz.....	35 00 @ 35 00
French Kips, ½ doz.....	1 00 @ 1 00
California Kip, ½ doz.....	60 00 @ 60 00
Eastern Wheel Stuffed Calf, ½ doz.....	80 00 @ 80 00
Eastern Bench Stuffed Calf, ½ doz.....	1 10 @ 1 10
Eastern Calf for Backs, ½ doz.....	1 10 @ 1 10
Sheep Roans for Topping, all colors, ½ doz.....	8 50 @ 13 00
Sheep Roans for Linings, ½ doz.....	5 50 @ 10 50
California Russett Sheep Linings.....	1 50 @ 1 50
Best Jodot Calf Boot Legs, ½ pair.....	5 00 @ 5 00
Good French Calf Boot Legs, ½ pair.....	4 50 @ 5 00
French Calf Boot Legs, ½ pair.....	4 00 @ 4 00
Harness Leather, ½ doz.....	30 00 @ 37 ½
Hair Bridle Leather, ½ doz.....	48 00 @ 48 00
Skirting Leather, ½ doz.....	31 ½ @ 37 ½
Welt Leather, ½ doz.....	30 00 @ 50 00
Bull Leather, ½ foot.....	22 ½ @ 25

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger	Express	Train	May 1, 1871.	Express	Passenger
Sunday	except d	Daily		Daily	Sundays
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.	
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:58 P.M.	
5:00 P.M.	9:00 A.M.	San Jose.....	5:00 P.M.		
7:58 P.M.	12:15 P.M.	San Francisco.....	4:45 P.M.	8:35 P.M.	
9:35 P.M.	2:10 P.M.	Sacramento.....	11:15 A.M.	7:00 A.M.	
	4:10 P.M.	Marysville.....	9:10 A.M.		
	5:00 P.M.	Sesma.....	4:30 A.M.		
	2:20 P.M.	Sacramento.....	11:45 A.M.		
	5:25 P.M.	Colfax.....	8:45 A.M.		
	1:15 A.M.	Reno.....	1:00 A.M.		
	9:10 A.M.	Winnemucca.....	4:05 A.M.		
	12:00 P.M.	Battle Mountain.....	1:25 P.M.		
	4:40 P.M.	Elko.....	8:45 A.M.		
	6:10 P.M.	Orden.....	5:15 P.M.		

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 6:50, 8:00, 9:10, 10:10, 11:00, 12:00, 1:00, 2:00, 3:00, 4:00, 5:15, 6:30, 8:30 and 11:30 p.m. (10:20, 11:10 and 3:00 to Oakland only).
LEAVE BROOKLYN, 5:15, 6:30, 7:40, 8:50 and 10:00 a.m., 1:30, 2:40, 4:55, 6:10, and 10:10 p.m.

LEAVE OAKLAND, 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a.m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p.m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00, and 11:15 a.m., 1:30, 4:00, 5:30 and 7:00 p.m. (7:20, 11:15 and 5:30 to Fruit Vale only).
LEAVE HAYWARD, 4:30, 7:00 and 10:45 a.m. and 3:30 p.m.
LEAVE FRUIT VALE, 5:25, 7:35, 9:00 and 11:20 a.m., 1:30, 4:40 and 5:50 p.m.

*Trains do not run Sundays.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

61 Miles the shortest line
From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh,
Harrisburg,
Philadelphia
and New York,
WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.
Express trains on this line are equipped with WHEELHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburg, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.
Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Lake, Cheyenne, Denver and Omaha. Be sure your ticket reads via Pennsylvania, Central & Pittsburg, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l West. Pass. Agt. Chicago, Ill.
J. R. ERRINGER, Jr., Travelling Agent, 4v22-ly San Francisco, Cal.

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$1.00

PURELY MUTUAL.....Interest, 6 per cent. per year

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. O. MORTON, Treasurer; H. B. CONG DON, Secretary. apl-2m.

THE MOST

Important Improvement

EVER MADE ON

SEWING MACHINES

CAN BE SEEN IN USE AT THE

HOWE SEWING MACHINE OFFICE,

No. 113 Kearny Street.

H. A. DEM NG, Agent.

Read the following endorsement, signed by our most prominent physicians:
We, the undersigned, practicing physicians of San Francisco, having examined and witnessed the operation of

MILLS' ADJUSTABLE TREADLE,

for Sewing Machines, take great pleasure in giving our testimony to the great value of the improvement, in a sanitary point of view.

The peculiar feature of this new Treadle is that the Foot-board is made Adjustable, both Vertically and Longitudinally, so that whatever the size or shape of the foot or shoe, the True Center of Motion of the Foot may Always be Brought to Coincide with the Center of Motion of the Treadle, and held there, thus Permitting the Feet to Move on their Natural Centers Without Having First to Overcome the Inertia and Weight of the Heavier Limbs.

In our opinion it possesses the following important advantages over the ordinary Treadle:

First—It eases the excessive labor and waste of power consumed in keeping up the rapidly alternating motion of the lower limbs and body whenever the machine is run with any speed.

Second—It avoids the frequent and serious injury to female health resulting directly from that motion.

By the general adoption of this Treadle we believe the only serious objection to the foot-power sewing machine will be removed, and that so far from being prejudicial to the health of the operator, its use will prove as harmless and positively beneficial as other physical exercises, tending directly to develop the muscles of the calf of the leg, strengthen the ankle, restore the elasticity of the foot, and promote circulation in the extremities.

Signed,
H. H. TOLAND, M. D.,
President Toland Medical College.
G. HOLLAND, M. D.
H. H. HUBBARD, M. D.
J. CAMPBELL SHORB, M. D.,
Ex-Professor Physiology Toland Medical College.
C. M. BATES, M. D.,
Health Officer,
(Constituting the San Francisco Board of Health).

L. J. HENRY, M. D.,
WM. F. HALE, M. D.,
BENJ. D. DEAN, M. D.,
President Medical Society of City and County of San Francisco.
WM. T. GARWOOD, M. D.,
DAVID WOOSTER, M. D.,
R. BEVERLY COLE, M. D.,
Professor of Obstetrics Toland Medical College.
J. P. WHITNEY, M. D.,
Emeritus Professor of Physiology, University of the Pacific.

L. C. LANE, M. D.,
Professor of Surgery, University of the Pacific.
O. T. DEANE,
Professor of Disease of Women and Children, Toland Medical College.

I have carefully examined the new Treadle attached to the Howe Sewing Machine, and consider it a most valuable improvement, doing away with most of the motion of the back and pelvis, which is unavoidable in operating the old style Treadle, and which has proven so detrimental to health. I cheerfully recommend it to those who work much with Sewing Machines, believing it will save them much suffering.

apl5-1m S. M. MOUSER, M. D.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLA-TING

P O W D E R,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

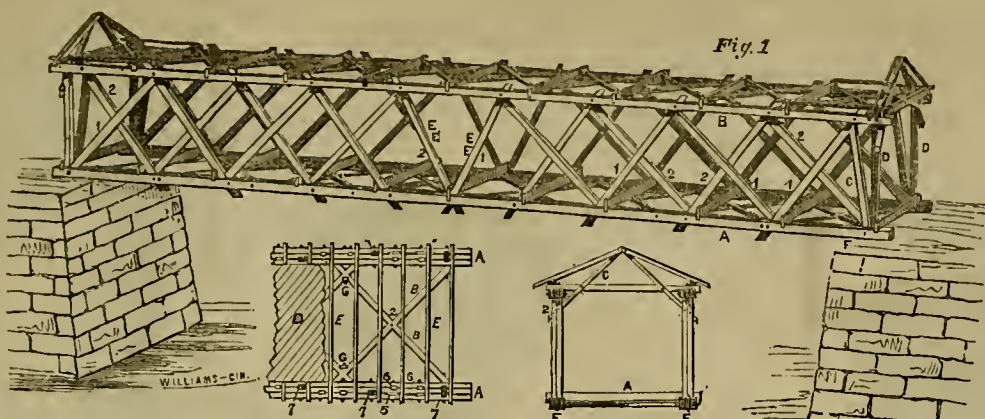
Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

O. MULLER, optician, 205 Montgomery street, stands first in his profession, and all those who suffer from defective eyesight should apply to him.

PACIFIC BRIDGE COMPANY,



W. H. GORRILL, OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

FAIRMOUNT MACHINE WORKS, 2106 WOOD STREET,
Power Loom Works, N. W. Cor. Hamilton and 21st Streets,

Philadelphia, Penn.

THOMAS WOOD,

Manufacturer of

POWER LOOMS, SPOOLING, WINDING,

Dyeing, and Sizing Machines;

AND SELF-ACTING

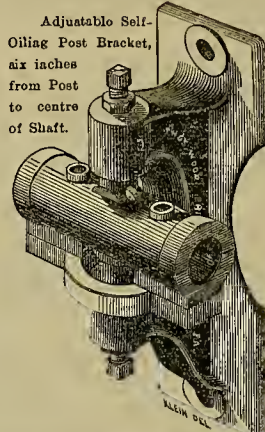
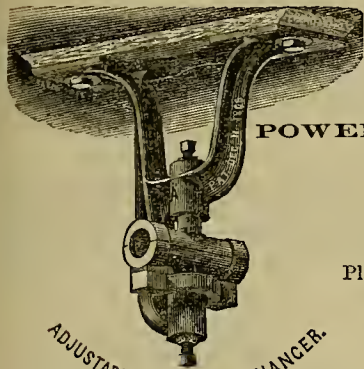
WOOL SCOURING MACHINES.

Plans taken and Factories fitted out complete with

SHAFTING AND GEARING.

Pulleys, Couplings and Self-Oiling Hangers.

ADJUSTABLE OR RIGID BEARINGS ALWAYS ON HAND.



The Patent Wood Horse Collar
AND HARNESS COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never sweats or galls the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sorest Shoulders

In Three Weeks, Working Every Day.
For further particulars as to price of Collars, etc., apply to or address WILDMAN & MARBLE, No. 30 California Street, San Francisco, Proprietors for the Pacific Coast.
Agents Wanted. 19v22-2m

Manganese! Manganese!

We have on hand the Best and Purest article of Fused Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,
CYANIDE OF POTASS,
And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco.
22v-17-3m

TO LEASE.

A VALUABLE MINING PROPERTY, consisting of a
Gold Quartz Mine,

A Twenty Stamp Water Mill, in good running order, Boarding House, Blacksmith Shop, Stable, Office, etc.
The mine has been worked for fifteen years, thoroughly developed, and shows a large body of good ore. In the immediate vicinity are a abundance of

Free Wood and Water,

From which the Mill is supplied. In consequence of the absence and detention of the owner, in the Eastern States, a favorable lease will be made to responsible parties on a rental per ton, or per month, for a term of one or two years. For further particulars address

A. K. GRIM, Agent,
No. 10 Express Building, San Francisco, Cal.
may6-2w

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



CAUTION AGAINST FAIR.

Declared by Connors-seurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.
Wholesale and for export by the Proprietors, Worces-ter; Crosses and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, GROSS & CO., San Francisco. 1v22-1yow

F. MORRIS,

Practical Assayer and Metallurgist,

Nos. 30 and 36 Fremont street,

SAN FRANCISCO,

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast.
19-v22-3m

CAUTION.

BETTS'S CAPSULE PATENTS

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous. BETTS being the original Inventor and Sole Maker in the United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

THE OFFICE OF

"THE BUREAU OF MINES"

AND

Mining Statistics of the Pacific Coast"

IS LOCATED FOR THE PRESENT AT

No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the Registry of Mines.

Parties desiring to communicate by letter, will obtain

Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,

Secretary of "Mining Bureau Pacific Coast,"

San Francisco, Cal.,

Care of Lock Box 406.

22v-18-1f

Mining and Other Companies.

Due to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Silver Sprout Mining Company—Loca-

tion of Works and Mines, Kearns District, Inyo County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fifteenth day of March, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names. No. of Certif. No. Shares. Amount.
Gillig, John.....unissued 640 \$4000 00
Heart, George.....unissued 200 1250 00
Mott, E B Jr.....29 200 1250 00
Tuttle, B F.....31 60 375 00

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of March 1871, so many shares of each parcel of said Stock as may be necessary will be sold at public auction at the salesroom of Man-riche Dore & Co., 327 Montgomery St., San Francisco, Cal., on Monday the 5th day of June, 1871 at the hour of 11 o'clock A. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

Stock in this Company will be received in payment of the above assessment, at the rate of \$12.50 per share, U. S. Gold Coin. T. B. WINGARD, Secretary.
Office, No. 206 Front street, San Francisco.

Salamander Gold and Silver Mining Company, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 4th day of May, 1871, an assessment (No. 8) of Thirty-five cents per share was levied upon the assessable stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Pfeiffer, at the office, No. 210 Post street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

R. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco.

Stockholders' Meeting—Office of the

Rogers Silver Mining Company, San Francisco, May 10th, 1871. In accordance with a resolution adopted at a meeting of the Trustees of the Rogers Silver Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company No. 6 Montgomery street, San Francisco, California, on Tuesday, the 20th day of June, A. D., 1871, at 11 o'clock, A. M., to take into consideration, and decide upon the proposition to increase the capital stock of said company from nine hundred thousand dollars, divided into three thousand shares of three hundred dollars each, the present capital of the company, to fifteen hundred thousand dollars, to be divided into fifteen thousand shares of one hundred dollars each.

GEO. S. MANN, }
JOHN BARTON, } Trustees.
G. D. WYMAN, }
R. PERRY, }

Kincaid Flat Mining Company—Tuolumne

County, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 28th day of April, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, No. 220 Clay street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 10th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 1st day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.

N. C. FASSETT, Secretary pro tem.

Office, 220 Clay street, San Francisco.

Mauntau Silver Mining Company—

White Pine District, Nevada.
Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of five cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the company's office, No. 2, New Merchants' Exchange (third floor), in San Francisco. Any stock upon which said assessment shall remain unpaid on the 1st day of June, 1871, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on the 19th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Room 37, New Merchants' Exchange, San Francisco.

Mina Rica Mining Company—Location of

works, Auburn Mining District, Placer county, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of April, 1871, an assessment of Twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the Company's office, Room 2, No. 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office, Room No. 2, third floor, No. 418 California street, San Francisco, Cal. 12v-1m5t

Nevada Land and Mining Company.—Lo-

cation of Works, Steptoe, Johnson and Latham, Antelope and Clifton District, Elko County, State of Nevada.
Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Thursday, June 8th, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, July 3rd, 1871, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office: Room 5, No. 302 Montgomery Street, San Francisco, Cal.

Noondaw Silver Mining Company—Lo-

cation of works, White Pine Mining District, White Pine County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 10th day of April, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 418 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the Fifteenth day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHARLES E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 418 California street, San Francisco, Cal. ap15-5w

Taylor Mill and Mining Company—Lo-

cation of works, Georgetown District, El Dorado County, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of April, A. D., 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 529 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of May, A. D., 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 12th day of June, A. D., 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, 529 Montgomery street, over Sather & Co's Bank San Francisco, Cal. ap25-5w

Yosemite Consolidated Mining Company—

Location of works, Santa Fe District, Lander County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the twelfth day of April, 1871, an assessment (No. 4) of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office, No. 28 Merchants' Exchange, San Francisco. And stock upon which said assessment shall remain unpaid on Monday, the twenty-second day of May, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the nineteenth day of June, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. ap15-1m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES.

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 5-qy

ESTABLISHED 1831.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.

Particular attention paid to Jobbing Work and
Repairs.
Sole Agents for sale of HUNTOON'S OLE-
BRATED PATENT GOVERNOR.
18720-3m GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Soller Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Teyls, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
4717-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14-1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
it to stand any pressure required; its lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 6v19-qy

DARLING & CO.,

Importers, General Agents and Commission Merchants.

Machinery, Merchandize and Supplies of every description Purchased and Sold on

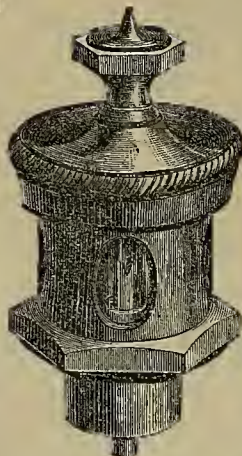
Commission,

AT LOWEST RATES.

General Agents for the

NATHAN & DREYFUS

SELF OILERS.



These Oil Cups are too well known
to require any lengthy description;
the following are the main points
of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transpar-
ent Glass Cap, mounted in Brass,
provided with a hollow tube, inside
of which is placed a loose acting
solid or hollow wire, which acts as
a Feeder and Regulator. The wire
rests constantly upon the Journal,
thereby acting with the bearing in
its motion. The wire is so regu-
lated inside the tube as to feed ac-
cording to the demand only. There
is no flow of oil whatever while the
machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' con-
stant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give
perfect and entire satisfaction.

DIRECTIONS.

Fill the Cup full of Oil, then screw the Cap down air tight. Place the tube in the oil hole in an upright position
or upon an angle of 45 degrees. Permit the Rod to rest upon the journal, and have a perfectly free action. If you
desire to have the oil flow faster, reduce the size of the wire.

Take Notice.

All persons are hereby cautioned against buying, selling or using any Cup with a wire resting upon the journal
that is not stamped with our name and date of patent, May 21st, 1867, as we shall prosecute all infringement, signed
NATHAN & DREYFUS, New York, Jan. 1st., 1871.

WE ARE ALSO GENERAL AGENTS FOR THE

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

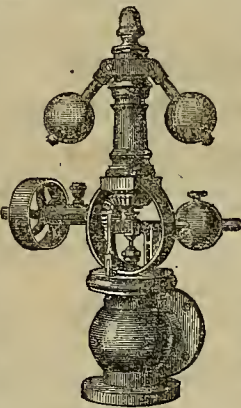
After an experience of eleven years in the manufacture of the above Governor, during which time several im-
portant improvements have been made and two additional patents obtained
we feel justified in recommending it to all parties using Steam power, and
warranting it to be the most perfect
regulator in the market.

The Gardner Governor is so well
known that we think it unnecessary to
enter into a detailed explanation of the
principles involved, or details in its
construction, merely giving the leading
object realized by this important in-
vention. The Governor combines with
the greatest simplicity of construction,
accurate regulation of speed, posi-
tive insurance against all accidents
liable to occur from slipping or parting
the Governor or driving belts, and a
convenient arrangement for adjusting
the speed of the Engine while in mo-
tion, without change of pulleys.

The construction of the Governor is
extremely simple, having no springs,
inside joints, swivels or parts liable to
disarrangement, all the several parts
are duplicates of each other in the same
series; the most skillful workmen are
employed, the best material used and
the machinery employed especially
adapted to their manufacture. Thus

we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheer-
fully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either
BLACK OR FINISHED, as you may require. We are also Agents for the



Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup
to the public, we desire to call
very particular attention to its
many special advantages.

FIRST:—Nothing but clean oil or
tallow is admitted into the Cyl-
inder, no lime or sediment of any
kind.

SECOND:—Its great economy of
both tallow and fuel.

THIRD:—It is self-acting, and
supplies the lubricating material
only while the Engine is in
motion.

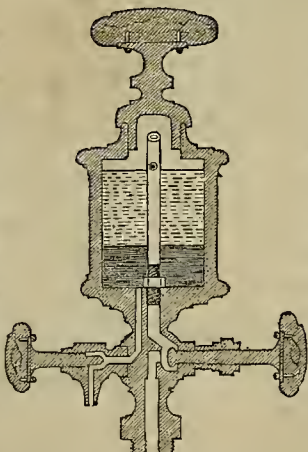
FOURTH:—Its certainty and regu-
larity of feeding, and increase of
the power of the Engine.

The principle upon which this
apparatus is founded is that, in-
stead of admitting tallow into the
Cylinder in considerable quantities
at uncertain intervals by means of
oil cups, grease cups, and other
crude contrivances, and allowing
it to be instantly blown out at
the exhaust (as must necessarily be
the case), this cup, by its pecu-
liar action, delivers the lubricant

in drops into the body of the
steam, which thereby becomes
thoroughly impregnated or greased
before passing into the steam chest
or Cylinder; the consequence is,
that instead of falling to the bot-
tom of the Cylinder, as it does
when admitted through a tallow
cup (which passes the lubricant
from the bottom of the cup to the
Cylinder), it enters into the form
of minute globules, and hence the
whole of the internal parts of the
engine become regularly and con-
stantly greased. The result of its
action has been proved in a very
great number of cases to be an
enormous saving of tallow, a con-
siderable increase in the power of
the engine, a great saving in fuel,
and reduction of internal friction
to a minimum.

These Lubricators will save you
75 per cent. of the Lubricating
Material, and cost no more than
the common Compression Cups.

The above Goods are Sold at
Factory Rates.



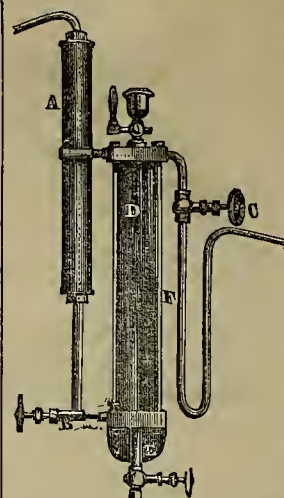
For Price Lists or information address DARLING & Co., 629, Washington Street,

San Francisco, California.

Traveling Agent—R. K. COLCORD.

6v22eow-6m

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW
CUP." This is
a California
Invention, and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.

DESCRIPTION:—D, is a glass chamber which contains
the lubricant. C, is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted siphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the ejector
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. 1618-17

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee
that the purchasers shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains,
from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and
repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Hmhm," but call and investigate its
merits. One can always be seen at the Pacific Iron
Works.

Ten of these Mills are now in operation.
For further particulars address

FURMAN R. WILSON,

San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
to have them constructed in the most perfect manner,
and of the great number now in operation, not one has
ever required repairs. The constant and increasing de-
mand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Sellers made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and sellers
for themselves, at the office, 229 Fremont Street,
San Francisco.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated 'Dutch Anchor brand Bolt-ing Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2v22-lyns 41 First st., San Francisco.

Gold Saving Amalgamated Plates.

Mioers, Quartz Millmeo---Attentioo.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. O. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.
Best means yet discovered for saving fine particles of Gold.
20v21-4f

WOODWORTH PLANERS



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE,
112 and 114 California street, San Francisco.

PACIFIC Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention
The highest price paid for Scrap Iron 8v143m



RUSS PATENT

MONITOR MOLDING MACHINE,

MADE BY

R. BALL & CO., Worcester, Mass,

Manufacturers of the latest Improved Wood-working Machinery for Planing Mills, Car Shops, Agricultural Implements, Furniture, Sash, Blind, and Door Factories, etc., etc. Send for Illustrated Catalogue and Price List.

RICHARD BALL.

E. P. HALSTEAD.

m4-8owly

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
18 and 16 Fremont street, near Market, San Francisco.
10v14qr



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,
San Francisco,

who have the different
sizes always in
store. 4v22

THOMPSON BROTHERS, EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr



JOHN WRIGHT,

MANUFACTURER OF ALL KINDS OF

MINERS' AND RAILROAD PICKS,

All Adze-Eyes, of Superior Quality.

13 AND 15 FREMONT STREET, AT NELSON & DOBLE'S, SAN FRANCISCO.

List of Prices of Picks.

No. 1 Round Eye Surface, 4 lbs...	\$18	No. 17 Drifting, 4 1/2 lbs...	\$20
No. 2 " " 4 1/2 lbs...	18	No. 18 " " 5 lbs...	20
No. 3 " " 5 lbs...	18	No. 19 " " 5 1/2 lbs...	22
No. 4 " " 6 lbs...	20	No. 20 " " 6 lbs...	24
No. 5 " " 6 1/2 lbs...	22	No. 21 Poll " " 4 1/2 lbs...	24
No. 6 " " 7 lbs...	24	No. 22 " " 5 lbs...	22
No. 7 " " 7 1/2 lbs...	24	No. 23 " " 5 1/2 lbs...	22
No. 8 Flat Eye Surface, 4 lbs...	20	No. 24 " " 6 lbs...	22
No. 9 " " 4 1/2 lbs...	20	No. 25 " " 6 1/2 lbs...	24
No. 10 " " 5 lbs...	20	No. 26 " " 7 lbs...	30
No. 11 " " 5 1/2 lbs...	22	No. 27 " " 7 1/2 lbs...	30
No. 12 " " 6 lbs...	22	No. 28 Coal " " 2 lbs...	12
No. 13 " " 6 1/2 lbs...	24	No. 29 " " 2 1/2 lbs...	12
No. 14 " " 7 lbs...	24	No. 30 " " 3 lbs...	14
No. 15 Drifting, 3 1/2 lbs...	18	No. 31 " " 3 1/2 lbs...	14
No. 16 " " 4 lbs...	18		

Also, Pick Eyes, Ready for the Steel, for Blacksmiths,

WHICH WILL BE SOLD CHEAP.

PRICES, FROM \$14 TO \$18.



N. P. Langland, STAIR BUILDER,

485 and 487 Brannan street,
SAN FRANCISCO.

15v16-ly

Rails, Newel Posts,

AND BALUSTERS,
Constantly on hand for sale, and
shipped, together with
all kinds of

STAIR WORK,

To any part of the coast. Practical
workmen sent, when desired, to
put up the same.

Work Warranted to Fit

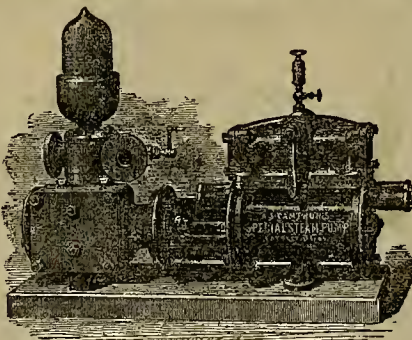
by simply sending a correct ground
plan of stairs, together with height
of story.

Wood-Turning and Scroll Sawing
of all kinds promptly executed
Spanish Cedar, Walnut and
California Laurel always on hand.

CAMERON'S
STEAM PUMPS.PICKERING'S
Engine Regulators.GIFFARD'S
INJECTORS.BARTOL'S
STEAM TRAP.
Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



MACHINERY — AT — GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

McAFEE, SPIERS & CO., BOILER MAKERS AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco

2v21-4f

SEVERANCE HOLT & CO., MANUFACTURERS OF Diamond-Pointed Drills AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting,
Draining, Grading, Submarine Blasting, Deep Boring
for testing the value of Mines, and Boring Artesian
Wells. Office, 318 CALIFORNIA STREET, San Francisco.
25v20-3m

STEAM JET PUMP.

Blakslee & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also highly
recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—GRAS, F. BROCK, 117 California st, San Fran-
isco; KEER & BARGTON, Stockton. Can be seen at
McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

For Steam Pipes & Boilers

Saves 25 per cent. For Sales by BERRY & PLACE,
4v22 112 California street, San Francisco.

The Stetefeldt Furnace.

For Information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4 v21-1y San Francisco.

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

(Successors to Geo. E. Rogers)

No. 612 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE, Manager.
J. A. MARS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v26

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical
CHEMIST.

No. 611 Commercial Street,

(Opposite the U.S. Branch Mint.)

SAN FRANCISCO, CAL.

7v21-8x

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS.

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established
in Swansea as Agents for the preparation, Sampling, Assay-
ing, and Sale of Copper, Silver, Gold, Lead, Zinc, and all
other Ores and Metals, for which they have extensive Ware-
houses and Wharves under cover, 1,000 feet of Quay Front-
age within the Floating Dock, and the most complete Ma-
chinery and Appliances. They are also prepared to make
advances against Ores in anticipation of realization, and to
guarantee all payments when required. 5v22-1ys

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters,
Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical
instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory. 11v21-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Ap-
paratus to our establishment, we are now prepared to
make working tests by any process, assay ores and pro-
ducts. Returns guaranteed. Answers to all metallur-
gical questions given. 26v21-3m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
25 Bond street, New York.

Platinum Scrap and Ores purchased. 22v18t

Dewey & Co., U. S. and
Foreign Patent Solicitors
and Counsellors, Scien-
tific Press Office.
Principal Agency
in the Pacific
States. Es-
tablished
1860.

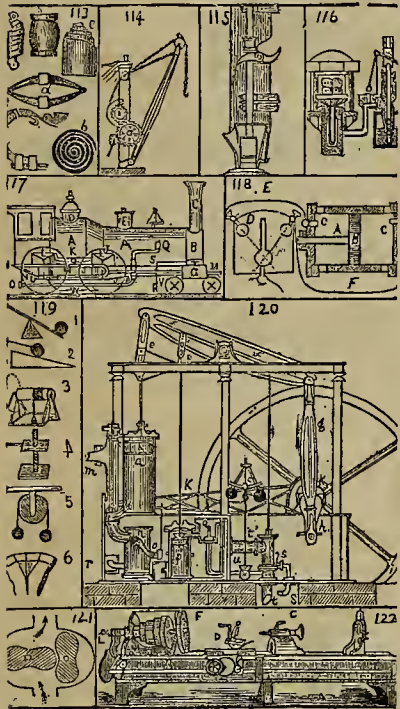


Plate V of Illustrated Mechanical Movements, described
in Dewey & Co's 48 page circular of Information for
Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors
fully secured in less time than through any
other agency in the United States, and at less
cost. If you think you have a valuable in-
vention, consult none but the best and most
reliable counsellors. They will obtain a valid
patent if new, or save you expense, if old, by
giving you honest and intelligent advice. All
business relating to patent soliciting transacted
confidentially and thoroughly.

DEWEY & CO.,
Patent Agents, No. 414 Clay st., San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion
of the Society, on Union Square, in
the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of
the Mechanics' Institute any day, between the hours of
1 and 9 P. M., or by letter to the Corresponding Secre-
tary, H. C. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who
intend to exhibit from this city. fe18-16p-1f

Yosemite

— AND —

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

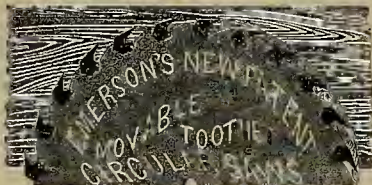
O. P. R. R. Office, 422 California Street.
C. P. R. R. Office, Oakland Wharf.
C. & N. W. Ry. Office, 445 California Street.
C. & M. W. R. R. Office, 214 Montgomery Street.
O. R. L. & P. R. R. Office, 208 Montgomery Street.
K. O. St. J. & C. B. R. R. Office, 306 Montgomery Street.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.
This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar
chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater
body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy sur-
face, impervious to the atmosphere, and extremely durable.
Office, 408 California Street.
MANUFACTORY, Corner Fourth and Townsend Streets.

ap8-3m

G. W. OSBORN, } Agents.
C. F. BROWN, }

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular
Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott &
Tuttle's Patent Cross Cut Saws; Davis' Patent Double
Cut Gang Saws (cuts both ways); and all of the cele-
brated brands of SAWS formerly manufactured by both
Hubbard, Lippencott & Co. and Lippencott & Co.

Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special
attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods
at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

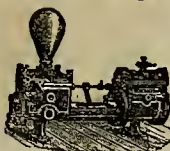
For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-1f Pittsburgh, Pa.

BAIRD'S
BOOKS
FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTI-
CAL AND SCIENTIFIC BOOKS, complete to April 16,
1871, 94 pages, 8 vo., will be sent, free of postage, to any
one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

The Angel's Quartz Mine



Shaft is over 400 Feet Deep,
and is kept free from water
in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Fran-
cisco. 4v22

GEO. T. PRACY'S
MACHINE WORKS,
109 and 111 MISSION STREET,
SAN FRANCISCO.



MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,
— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

For Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathin
Sails, Rudder Braces, Hinges, Ship and Steamboat Bells; an
Copper superlatone. All kinds of Cocks and Valves, Hy
draulic Pipes and Nozzles, and Hose Couplings and Connec
tions of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED V. KINGWELL.

John G. Hodge & Co.,
IMPORTERS AND WHOLESALE
STATIONERS.



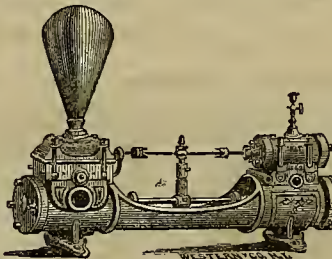
KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

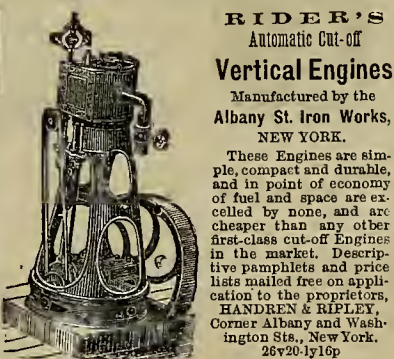
Blank Books made to order from Crew
Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St. (San Francisco.
19v21comly

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds
new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p



RIDER'S
Automatic Cut-off

Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are sim-
ple, compact and durable,
and in point of economy
of fuel and space are ex-
celled by none, and are
cheaper than any other
first-class cut-off Engines
in the market. Descrip-
tive pamphlets and price
lists mailed free on ap-
plication to the proprietors,
HANDREN & RIPLEY,
Corner Albany and Wash-
ington Sts., New York.
26v20-1y16p

MAGAZINES.	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godsey.....	
New York Ledger.....	
Blackwood.....	
Honors at Home.....	
Good Words.....	
Arthur.....	3 00
Peterson's.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	6 00
London Society.....	
All the Year Round.....	
London Ill. News.....	15 00

W. E. LOOMIS,
News Dealer

AND STATIONER,

S. E. corner of Sansone and
Washington streets,

SUPPLIES ALL

Eastern Periodicals,

BY THE
Year, Month, or Number.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER
and other material over difficult roads, or from
otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,
519 Front street, San Francisco, by contract or other-
wise.

Communication by letter to Lock Box 1161, San Fran-
cisco Post-office. fe18-1f-16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Globes, Steam Whistles. HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes.
Particular attention paid to Distillery Work. Manufac-
turer of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP-
PER and BRASS.
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and
economical Saws in the World.

Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

Pacific
Insurance Company.
No. 422 California St.,
San Francisco
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President. A. J. RALSTON, Secretary
WM. ALVOID, Vice-President. A. BAIRD, Marine Secretary.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

O. J. KING, B. KIMBALL, P. D. CODE,
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 20, 1871.

VOLUME, XXII
Number 20.

Safety Boilers.

On our coast, especially in our mountainous mining regions, where freights are high and fuel often very costly, a boiler which is easily transportable and economical in the use of fuel, is a desideratum. The one here illustrated claims to satisfy these demands, and has been largely used with very general satisfaction.

In order to economize in fuel, high pressures are now very generally employed in the use of steam. Those of our readers who have read the articles on the subject, as they have appeared in the *Press*, will understand the reason of this. We may here briefly state that the economy results in this manner. The heat actually utilized is that imparted to the steam after its generation; consequently, the greater the heat used in increasing the temperature of the steam, compared to the heat used to generate the steam, the greater the proportion of fuel utilized. The pressure and the temperature of steam bear a direct relation to one another.

Hence the tendency is to get the highest possible pressure. This is limited, in practice, by the strength of the boiler. But the safe pressure for a large shell boiler is comparatively small, the disastrous explosions of such boilers have further lowered the public confidence in them, and others have been introduced.

Among the first thus introduced to obviate the danger arising from the use of old-fashioned shell-boilers, was the one here illustrated, which allowing of great economy in fuel, while being at the same time safe, from its ease of transportation, erection and removal, and from its excellent workmanship, has been extensively adopted.

Fig. 1. gives a sectional elevation, and Fig. 2 a front view, of the boiler. Fig. 3 shows the tubes placed in position, but

not set in the brick work; and Fig. 4, the iron frame which accompanies each boiler.

The water is contained in tubes, *a, b*, of wrought iron, placed in a slanting position over the fire. These are connected by a simple and ingenious arrangement, *c*, consisting of triangular castings, forming three-way bends, and held in place by clamps

till a new tube is obtained. If an increase of boiler capacity is desired, new tubes can be added on the sides and top, and the furnace enlarged by removing only the brick work on the top and on one side.

The communication between the tubes is made large so as to counteract the tendency of the steam to carry water with it and leave a tube partially empty, when a

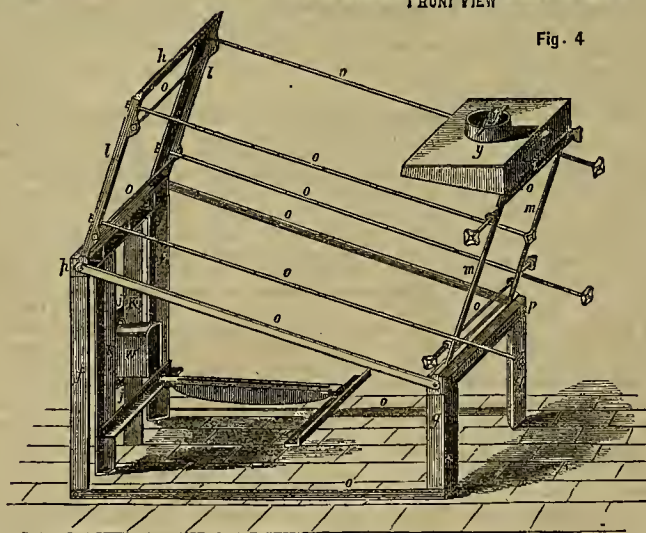
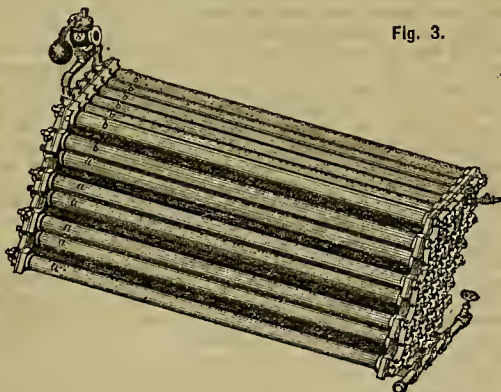
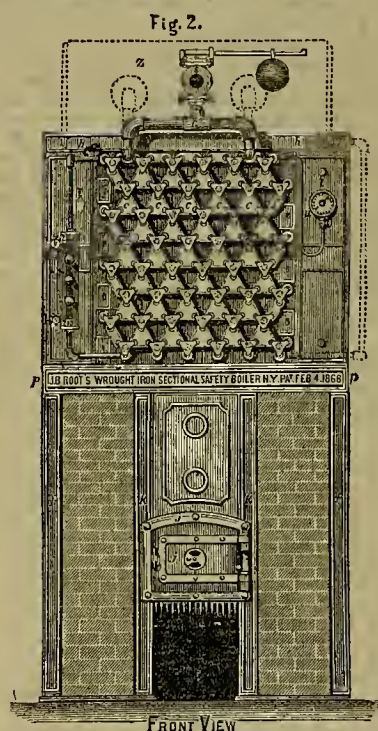
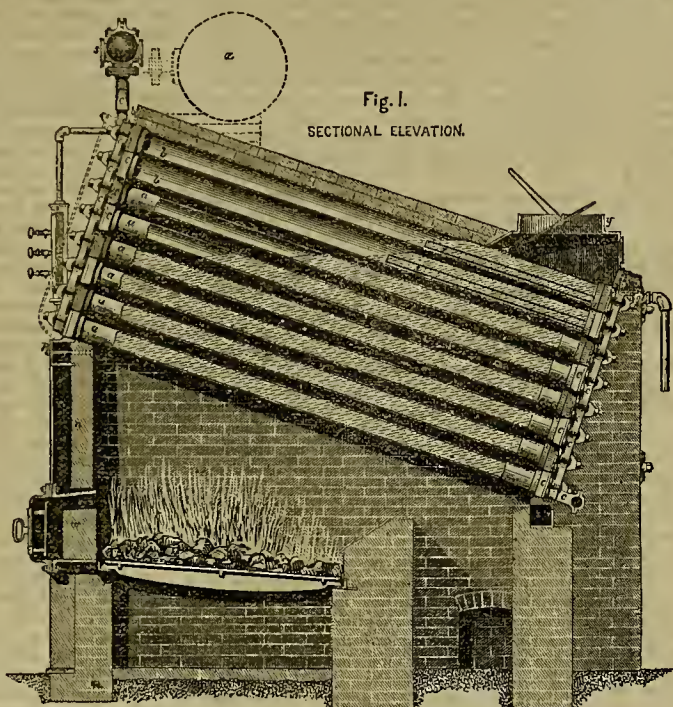
man can set such a boiler, without even having seen one, from the drawings.

The tubes are tested, before leaving the shop, up to a pressure of 500 lbs. to the inch. There is no doubt but that such a boiler will carry safely a much higher pressure than an old-fashioned one. Even if a tube should burst, it could cause but little damage, and the break would immediately act as a safety-valve for the rest.

The manufacturers state that in some cases, through accident or carelessness, some of the tubes have become entirely emptied of water and heated red-hot, and that, while in this condition, they have been again pumped full of water without drawing the fire and without any accident. They also state that in ordinary practice they are able to evaporate from 8 to 10 lbs. of water to 1 lb. of coal, which is certainly very high economy. The boiler may be taken to pieces for transportation, so that no part is too heavy to be carried, if necessary, in mountainous regions. The boiler is certainly worthy of serious consideration. Pamphlets, price lists, etc., may be obtained from the manufacturers, the Root Steam Engine Co., Second Avenue, corner 28th street, New York city.

WILD GEESSE IN MONTANA.—The *Deer Lodge Independent*, of April 22d, says:—Yesterday the air was literally alive with wild geese migrating North. Our sportsmen had a lively

time in taking a few of them in out of the cold. Mr. Sam. Scott killed nine, five of which he brought down at one shot. Mr. Owens, who lives about a mile above town, killed seventeen. The wind was blowing very hard from the North at the time, and the geese made but poor headway against it. Mr. Owens was mounted on the hurricane deck of a cayuse, and kept up with them for some distance firing at and killing them as long as he followed them. He killed 13 in this manner.



and bolts. Upon the ends of each tube are screwed hollow cast-iron heads, each containing three circular recesses, in which are inserted vulcanized rubber rings, and upon these the three-way bends are secured. In case of accident to any one tube, it can be removed easily in a few minutes, and a new one inserted; or if an extra tube is not at hand, the tube can be removed, the circular opening in adjoining heads, which connect with it, closed by blanks, and the boiler continued in opera-

sudden demand for steam is made. Figs. 1 and 2 show the position of the steam drum, *z*, and of the safety-valve, *s*. In regard to the frame, Fig. 4, the relative heights of the standards are such that the tubes, when set, are inclined about 18° with the horizontal. The plate, *y*, forms a base for a wrought-iron smoke stack, and is provided with a damper. The iron frame serves to hold the brick-work firmly together, and is also a valuable guide for the mason. By its aid, an intelligent work-

MECHANICAL PROGRESS.

BURNT IRON AND BURNT STEEL.—This is the title of a paper read at a late meeting of the London Chemical Society, by W. Mattieu Williams. *Nature* for April 20th gives an abstract of it, from which we quote:—"Iron which has been damaged by reheating, or excessively heated and exposed after balling in the puddling furnace, is designated 'burnt iron' by the workmen. It is remarkable that no amount of heat applied to the iron in the blast furnace or in the early stages of the puddling process produces burnt iron. Burnt iron is brittle, its fracture is short and what is called crystalline, it has lost the fibrous character of good iron. If steel is raised to a bright red heat and suddenly cooled, it is rendered hard and brittle, but these conditions may be modified by the process of tempering; if, however, the steel be raised to a yellow or white heat, and then he suddenly cooled, it is no longer capable of being tempered by mere reheating. It is worthless for ordinary uses of steel unless it is again raised to a welding heat and rolled or hammered while hot, and then allowed to cool gradually. The fracture of burnt steel presents a coarse grain and a crystalline appearance. Careful investigation, however, shows something more, viz., that the facets of the aggregated granules have a more or less conchoidal form. The name of 'toad's eyes' has been given by practical men to these concavities. Mr. Williams found that a piece of burnt iron contained oxide of iron dispersed through the mass. A sample of burnt steel, however, investigated in the same manner as the iron, showed no indications of the presence of oxide. This, of course, was to be expected, as the carbon of the steel must, more or less completely, protect the metal from oxidation. That iron, when unprotected by combined carbon, should oxidise not merely on its surface, but through its whole substance, when exposed at a sufficiently high temperature and for a sufficient length of time to the action of the atmospheric oxygen, is not difficult to conceive, since the researches of Deville, Troost, and Graham have shown red-hot iron to be permeable by certain gases. In the case of steel, as Mr. Williams states, the burning is limited to the oxidation and consequent removal of the carbon, which takes place even at a low red heat. The permeability of red-hot steel by oxygen and carbonic oxide enables us to understand the process of the internal oxidation of the carbon. The 'toad's eyes' or conchoidal facets of the so-called crystals, Mr. Williams explains by supposing a piece of steel at the temperature most favorable to the rapidest endosmosis of oxygen and the exosmosis of carbonic oxide to be suddenly cooled, and the possible occlusion of the carbonic oxide to be arrested. The results would be a certain molecular disintegration and porosity of the steel presenting those conchoidal spots. This view is further supported by the fact that burnt steel may be cured by reheating and hammering, or rolling at a welding heat."

SAFETY DEVICE FOR WATER PIPES.—A new English device to prevent the freezing of water in pipes is thus described:—Weighted valves are so arranged that if left to themselves they will drop, shut off the supply of water, and empty the pipes. But being suspended from a small glass tube filled with water, they are supported until the tube is burst by the freezing of this water, when they fall and thus empty the pipes before the water in them can be frozen. The renewal of the glass tube when the weather moderates, costs but a trifle.

CUBAN ARTILLERY.—"The Cuban government has shown no little fertility of invention in producing such articles as were most necessary and could not be otherwise obtained. Their cannon are made from *raw hides*, which, incredible as it may seem, will, it is said, sustain fifteen or twenty pound discharges. In the manufacture of powder the Cubans have shown great ingenuity, having successfully used for this purpose the guano deposits in the caves frequented by bats. This process is the discovery of Senor Castello, a graduate of the Polytechnic College, of Philadelphia. From 150 to 200 pounds of serviceable powder are thus made per day."—*Iron Age*, May 4th.

CANAL BOAT PROPULSION.—The Legislature of New York has just passed a bill offering a reward of one hundred thousand dollars for the best device whereby "any motor other than animal power," may be profitably applied to the propulsion of canal boats. Commissioners have been appointed to test all inventions or devices offered during 1871-72. If the Commissioners grant only one certificate for a plan complying in all respects with the requirements of the bill, the owner of that certificate shall receive \$50,000. If they grant two certificates, No. 1 gets \$35,000, and No. 2 \$15,000; if three, No. 1 gets \$30,000, No. 2 \$15,000, and No. 3 \$5,000. After practical trials of the devices selected, upon the Erie Canal, a further sum of \$50,000 will be paid Nov. 1st, 1873, to the successful ones, in the same proportion as above; making the sum total of one hundred thousand dollars.

BEST FORM OF RAIL.—In an article referring to Mr. Bessemer's late remarks at the Iron and Steel Institute upon a standard rail-section, the *American Railway Times* says: "A pretty good type of the rail which modern practice has found valuable may be seen in that adopted for A. T. Stewart's road on Long Island. This rail is 4½ inches depth of section, 2½ inches width of head, 4½ inches base, 9-16 inch stem, and weighs 63½ lbs. to the yard. The joints are two fish bars 17½ inches in length, the pair weighing 16 lbs., and secured by four bolts and nuts. Something like this, with slight modifications, is the rail now in use on many roads with favorable results. A shallow rail cannot be well fished, and hereafter we hope to see no pattern adopted of less than four inches depth, while we believe four and one half and five inches are much better for trunk or other roads with large traffic. If we could get the united experience of some dozen or so of the best railway engineers and managers by an authoritative expression of their views upon this important matter, we might hope that in the course of a few years this rail question might be settled upon some sensible basis."

KRUPP AND RODMAN GUNS.—The *Artisan* is informed by Krupp's agent in New York that the largest Krupp guns used at the siege of Paris were 24-pounders, about six inches bore. The French forts were armed with the largest marine guns of the French fleet, but the accuracy of Krupp's twenty-four pounders soon dismounted them, piercing the casemates, and reducing Fort d'Issy to a heap of ruins. * * The penetrating power of a 15-inch Rodman gun, weighing 39,000 lbs., with 60 lbs. of powder, is equal to 26.80 foot-tons; while Krupp's 24-pounder gun, weighing only 8,000 lbs., and with only 15 lbs. of powder, is equal to 47.70 foot-tons. A ship armed with this light weapon would, it is asserted, be more than a match for any vessel with as many 15-inch guns on board as it could carry.

IMMENSE ENGINE.—The Southwark Foundry, Philadelphia, contains an enormous engine, the diameter of whose cylinder is 110 inches; stroke, ten feet; two fly-wheels of thirty feet diameter, and weighing each about ninety tons; main beam of four parts, each thirty-six feet from center to center of pins, and nine feet deep through center. Beam centers of wrought iron twenty-seven inches in diameter; main shaft twenty-seven inches in diameter. The total weight is estimated to be, without pumps, 1,500,000 pounds, and its capacity 15,000 gallons, or sixty tons pumped 300 feet high per minute. The beams and pins weigh about 210,000 pounds, and the other parts in proportion.—*Pittsburgh Iron World*.

LOCOMOTIVE REFORM.—This is the subject of a paper recently read by N. M. Forney, before the New York Society of Practical Engineering: "It therefore becomes a question whether it is cheaper to pay the interest on the difference of cost between the heavy and the light iron, or distribute the adhesive weight on more driving-wheels. Up to the present time, the great majority of American railroad engineers have decided that the former is the cheaper of the two. Coupling more than two pairs of wheels is very generally considered to be objectionable, and, with the exception of those roads whose grades would not admit of being worked in any other way, locomotives having six and eight wheels connected have, in this country, generally been abandoned."

SCIENTIFIC PROGRESS.

REGIONAL ELEVATIONS AND SUBSIDENCES.

Lieut. C. E. Dutton read a paper April 7th before the American Philosophical Society, upon the causes of change in regional elevation, in which he advanced certain views of his own in regard to the changes effected in rocks while undergoing metamorphism. Their specific gravity is undoubtedly changed; also their volume. If the volume is increased, there must be an expansion, and that can only take place in a vertical direction upwards. A decrease of volume would, similarly, occasion a subsidence. We quote from an abstract of the paper in the *U. S. Railroad Register*:

"If we were to assume a change in the specific gravity of 1,000 feet of rock to the extent of five per cent. we could account for a change of level of 50 feet, and a series of rocks as thick as the carboniferous in this State, would, with an equal amount of change, give an alteration of level equal to the average altitude of the North American Continent above the ocean. It is, of course, impossible to conjecture the depth to which metamorphic action may extend, though it is undoubtedly very great; at least eight or ten miles, and there might be no great improbability in supposing such changes to take place through a large portion of that depth at the same time. That the rocks far down below the surface take up under the influence of great pressure, aided no doubt by heat, large quantities of water, carbonic acid, sulphuric acid, &c., is manifest in the materials issuing from volcanoes and from thermal springs. Water and gaseous acids issue in such enormous quantities from volcanoes, as to constitute a large fraction of the entire mass delivered, indicating that the solid materials have become supersaturated with them, and the association is resolved as soon as they reach the surface of the earth, and are relieved of the pressure to which they have been subjected. The overflow of volcanoes would, it is suggested, be susceptible of a similar explanation. Let us suppose a stratum or two, situated a few miles below the surface, became softened or lightened by the combined agencies described, so as to be specifically lighter than the average mass of overlying rock. If a vent or fissure could be found, such a plastic mass would inevitably follow the laws of the equilibrium of fluids, and would not only rise up into the chasm, but overflow. Putting the problem into another form, the heavier overlying mass would sink into the lighter semi-fluid beneath, and drive it upwards. It is a well-known fact that the lavas are all of small specific gravity. * * * In a similar manner Lieut. Dutton sought to explain the intrusion of traps, trachytes and basalts. These rocks were probably lighter than those which originally overlaid them, and forced their way through weak places to the surface. The traps, basalts and porphyries—at least such porphyries as may be called intrusive—though they are unquestionably altered sediments, are for the most part amorphous, and not crystalline. They were evidently altered at a comparatively low temperature, and at no very great depth. They do not appear to affect the strata into which they are intruded, and withal, are less highly metamorphic than gneiss or marble. Water seems to have been the chief agent in their transformation, and they may have been forced upward in a soft condition, and upon being relieved of the pressure, parted with the greater portion of this water. The traps and basalts also exhibit many planes of cleavage, with very perceptible interstices, and these interstices would seem to be much wider than could be accounted for by the contraction of cooling. He stated that he had often noted this fact, and was decidedly of the opinion that the contraction of these rocks by loss of heat, could by no means account for the entire width of such planes of cleavage, and believed that it was in great part due to the loss of water, which had once rendered them plastic."

SUBTERRANEAN ELECTRICAL DISTURBANCES.—The following is from *Nature* for April 20th:—"A few minutes before and after the earthquakes of the 17th March last powerful positive electrical currents were rushing toward England through the two Anglo-American telegraph cables, which are broken near Trinity Bay, Newfoundland. Mr. C. F. Varley O. E., who informed us of the fact, broaches the nov-

el speculation that some earthquakes may be due to subterranean lightning. He imagines that as the hot centre of the earth is approached, a layer of hot dried rock may be found which is an insulator, while the red hot mass lower down is a conductor. If this conjecture be true—and there is plausibility in it—then the world itself is an enormous Leyden jar, which only requires charging to a very moderate degree to be equal to the production of terrific explosive discharges. The French Atlantic cable was disturbed at the same time, and so were many of the English land-lines, but the only observations as to the direction of the current were made by means of the Anglo-American telegraph cables. A number of Mr. Varley's charts about earth-currents were published in the Government Blue Book of 1859-60, showing that the direction of these currents across England was in a very notable degree determined by the contour of the coast, and that the same auroral discharges would often produce currents at right angles to each other in direction, in different parts of Britain."

PLANT REMAINS PRESERVED IN COAL.

We copy the following from a notice, in *Silliman's Journal* for May, of Mr. Lesquereux's chapter on coal plants in the report of the Illinois Geological Survey:—"We have here mention of the fact that plants are sometimes found in good preservation in the solid coal, as well as in the disintegrated form of mineral charcoal which often occurs between the layers of the denser coal. 'This [former] case is especially observable in a kind of hard laminated flint coal, obtained in Mercer county by Mr. H. A. Green [of the Survey], which bears on the horizontal surface of its crystalline lamellae, however thin they may be cut, the outline and nervation of leaves and branches of ferns and other vegetables of the coal; and these are so distinctly marked that the most delicate parts are as easily identified as those of plants preserved in shales. The great abundance of these remains shows that the whole mass of this coal, which is true coal and burns freely, is a compound of them. In shales, the leaves of ferns and other plants are sometimes finely preserved in the form of extremely thin layers of coal; while, in other cases, the carbonaceous matter has nearly disappeared, leaving barely enough to show the outlines of the fossil. In still other cases, we find larger or smaller fragments of the cuticle of plants, not completely altered to coal, of a reddish-brown color, and retaining considerable elasticity. 'The shales, according to the amount of vegetable matter mixed in them, and the depth at which they have been formed under water [?], are of a more or less dark color; whitish or yellowish, when of fresh water origin, and with few remains of plants; black and generally more homogeneous when formed in deep water, and baving, for a larger proportion of their compound, broken remains of organized beings."

FOSSIL SERPENTS FROM WYOMING.—In *Silliman's Journal* for May, Prof. Marsh describes specimens of reptilian fossils found by the Yale College party last summer, in the Green River Tertiary basin, west of the Rocky Mountains. Among them were the remains of several species of serpents, the first extinct Ophidians found in the interior of the continent, and with the exception of three species from the Eocene marl of New Jersey (sometime since mentioned in the Press), the only ones yet found in the country. Nearly all belonged to constricting serpents, closely related to the modern Boas of South America, although smaller and generically distinct. For the separate genus represented, Prof. Marsh proposes the name *Boavus*, "in allusion to the not improbable relationship of the two types."

MIVART ON DARWIN.—St. George Mivart thinks that the long-armed apes, or gibbons, are more probably the direct ancestors of man than the orangs or African forms of the anthropoid monkeys. He proceeds to give his reasons for this opinion in *Nature* for April 20th. But he closes with this remark:—"To prevent misconception. I may add that fully recognizing the truth of Mr. Darwin's appreciation of man's zoological position, which I have ever maintained and indeed labored to support, I none the less completely differ from him when I include the totality of man's being. So considered, Science convinces me that a monkey and a mushroom differ less from each other than do a monkey and a man."

CORRESPONDENCE.

Irrigation by Iron Pipes.

EDS. PRESS:—Serious as are the consequences to our State of another dry winter, it has certainly produced one good effect. It has thoroughly aroused our people, especially in the San Joaquin valley, to the vast importance of irrigation for our grain fields.

Of the many plans proposed and on foot for this praiseworthy purpose, all we have heard of up to this time are on the principle of a ditch, or canal, beginning at some suitable point on the Joaquin or its branches, and dng through the various portions of the valley where the water is to be distributed.

A different plan, which is in some respects peculiarly adapted to California, has been suggested to the writer by a friend, and appears to present certain advantages that make it worthy of examination and discussion, even if it should be considered, at first thought, too expensive to be tested practically. But we hope an accurate estimate of the expense of constructing such a system will be made by those who have the information necessary for that purpose, and that the scheme may prove to be entirely practicable, and if so, may at once be put in execution.

Here we shall merely give an outline of the plan proposed, that it may be examined by others, and approved or disapproved at their leisure.

Instead of a canal, with its ditches and sluices, this plan consists of a system of cast-iron pipes, similar to those used to supply our large cities with water. Let the main pipe be, say two feet in diameter, or larger, if necessary. Force the water into this pipe, as is usual in such cases, at some desirable point on the stream from which the supply is to be taken.

A steam engine and pump of sufficient capacity to lift the desired amount of water to the proper height, would perhaps best accomplish this object. Now if this plan is not too expensive and can be readily put in practice, observe its advantages.

We must first remember that the amount of water in California with which we can irrigate our fields, is quite limited, in comparison with the inexhaustible supply for the superb system of irrigation which has been in use for centuries along the valley of the Po in Northern Italy. In the latter instance, where lofty mountains stand on each side of a long valley, almost exactly as is the case with the valley of the Sacramento and San Joaquin, there are, in the lower portions of the mountains, large lakes which form such immense reservoirs of water as we cannot control for the same purpose in our valley.

Consequently it is a matter of the first importance to avoid all waste of our limited supply of water. If a canal is used, how much water must our thirsty soil absorb? How much will our dry atmosphere evaporate? Iron tubes will prevent this waste. With them there is no absorption, no evaporation. They will convey all the water drawn from our rivers to the point where it is to be distributed.

Again, they will take up less room than a canal and ditches. For that matter, all the main pipes can be buried, if need be, and thus all the ground through which they pass can be cultivated. They would not interfere with roads, and no bridges would be necessary.

Another convenience of this system would be hydrants in our yards and houses. The durability of the tubes would be one of the advantages, and though the original expense might be greater than for the canal system, the expense for repairs would be comparatively light. The work once completed would be lasting.

Other advantages will present themselves upon a careful consideration of the subject. At all events, it recommends itself especially for our sandy soils. Though these pipes should convey a smaller amount of water than a canal, rules could be adopted to irrigate tracts in rotation, so that the supply would be ample for all practical purposes.

The next question is, would such a system pay? If the system of iron pipes in our mountain districts pays so well for mining purposes, why should they not pay when applied to the wants of agriculture. And if it pays to bring water to a city by such a system, to be consumed, why

should it not pay when its supply is likely to double the yield, and more than double the profits per acre?

Will not some of your correspondents who is competent for the work, make an estimate of the expense of such a system of irrigation, and let us know, through your columns, whether the capitalists of our State would be justified in forming a company to inaugurate such a scheme? If practicable, an act of incorporation might be secured at the next session of the Legislature, and portions of our plains could be supplied with water by this means in the spring of '72. No doubt, all land owners and farmers of our valley would do everything in their power to secure the success of such a scheme, were it found to be practicable. Right of way for the main pipes could no doubt be easily obtained along the line of projected railroads. w. w. Fair View District, Stanislaus Co.

Bull Run District, Nevada.

EDS. PRESS:—Everything is looking satisfactory here now. The Ogden Company have commenced work on their lode, and the McShane Company have also started up. The Johnson mine is looking better than ever. It is situated on what is known as Johnson Hill, at an elevation of 8,778 feet above the sea, and about 300 feet below the summit of the hill on the west side. The vein pitches to the east at an angle of 45 degrees for some 40 feet from the surface, and then changes to a dip of 60 degrees. At the depth mentioned, it is wider than at the surface, and shows an abundance of good ore. It has regular walls, and is bounded by slate on one side, and by limestone on the other.

The Porter mine has been leased to Mr. Mott, of Sacramento, who has 12 men at work extracting the ore, and who will, we understand, employ 10 more in a few days. The ore will probably work \$400 per ton. Mr. Mott has a pack train, loaded with ore to be worked at Vance's mill at Mountain City, and will keep this train employed all summer carrying ore from here to Mountain City. It is said that Mr. Mott has also leased the Revenue mine, and will start in on it in a couple of weeks. Prospectors are coming in daily, and lively times are expected here this summer.

Bull Run Defended.

Our district has been subject to many inconveniences, as you know. There is one point, however, which I would now touch on, as it is an undesired evil under which we have labored. A certain class of men, pretending to be mining experts, have come hither, and, after visiting one or two mines, have gone away without further examination of what we have, and have given out unfavorable reports concerning the place. One person of the class was here last fall, and, after looking at the Blue Jacket and Found Treasure, returned saying that he did not wish to see any more. Now these men did not really see what we have, and are unqualified to give a fair judgment.

The decision against the two mines named, is open to much criticism. But let me give a short description of them. The Blue Jacket has a well-defined ledge, with regular walls. A shaft, sunk 59 feet on the vein, shows better ore below than above; and a drift, run in 90 feet from the bottom of the shaft, shows an abundance of rich ore all through the ledge, which is 20 feet wide. Of this ore, 50 tons, worked at Mountain City, yielded \$246 per ton; over 200 tons are now on the dump (this could not be removed last fall before the snow prevented pack trains from getting up to the mine); and thousands of tons are in the mine, of richer quality than that previously shipped.

The Found Treasure has been prospected to a depth of 100 feet by shafts and tunnels, with plenty of ore in sight, and 40 tons on the dump, which will work over \$800 per ton. The ledge is 8 feet wide, with good casings in both sides.

Now these ledges certainly promise a good return to their owners, and do not merit the decision against them. The great objection is that they are high up on the mountain, and therefore inconvenient of access by wagon; still they are excellent properties.

Several times within the last 12 months, "experts" have called here, but have made no fair examination. The miners of our district are at all times ready and willing to allow their mines to be inspected by any one wishing to do so; but they demand that just reports should be made.

BULL RUN MINER.

Bull Run, May 3d, 1871.

California Wagons vs. Eastern Wagons.

One of the most important questions of the day to California, is whether her mechanics can or cannot successfully compete with the mechanics of the Atlantic States in supplying the demand of the Pacific coast for farm wagons, carriages and other vehicles in common use, and for agricultural machines and implements generally. In considering and discussing this question, we propose to do so with candor and fairness to all parties interested, acknowledging in the first place, that as Californians our interests and sympathies are strongly with the California mechanics.

Before going into a close examination of the proposition stated above, perhaps we might as well state here the points upon which the California wagon-makers base their claim to the superiority of the California-made wagon over the imported, and consequently to the patronage of the people of this coast.

1st. That the timber used in the California-made wagons being almost wholly obtained from the Atlantic sea-board States, and a very large proportion of it of second growth, is much better than that used in the imported wagons, which is obtained from the western forests where the wagons are made, and which is well known to be from large trees of the first growth of timber.

2d. That even if the timber used in the wagons was of equal quality, which they deny, the California wagons, being put up in a drier climate, and of timber that has for a long time been subjected to the action of that dry climate, must necessarily be, and are, much more serviceable and more valuable than wagons put together in the comparatively damp climate of the Atlantic States. Especially so, if the wagons are to be used in the dry atmosphere, and dry and hot soils of California, Nevada, Utah, Montana, Arizona and New Mexico.

3d. That the experience of the California mechanics on the ground, and having come from, and having brought with them the skill and tact of, all parts of the world, has given them a better understanding of the special wants and peculiar necessities of the farmers and others who use wagons on this coast, and has the better prepared them to meet those wants and necessities in all that relates to the strength, proportion, adaptability and durability of wagons to be used here or in a similar climate.

Of the general correctness of the above claims we have no doubt; but leaving our readers to judge of this question for themselves, we will pass to the advantages upon which the Eastern manufacturers mostly rely to sustain them in the competition upon which they have entered for the wagon trade of the Pacific Coast.

Their better facilities, their close proximity to the raw material used, their larger and better organized shops, with all the most approved labor-saving machines, united with plenty of capital or moneyed means with which to operate, all directed by an intelligent head, for the accomplishment of a definite purpose, assisted and guided by extensive general experience. In all these respects, as things now stand, the Eastern manufacturers, undoubtedly have a great advantage over us.

The Opposite Picture.

To illustrate, we will reverse the relative positions.

Suppose that all the large Eastern wagon manufacturing establishments were broken up, their labor-saving machines destroyed, their now united and well-managed capital divided into thousands of parts, and invested in as many thousands of small shops and rude tools, located in the small towns and villages and cross-roads throughout the country; suppose that these shops and this divided capital were under the control and management of as many different mechanics, whose experience and business capacity were as limited and circum-

scribed as their business and means, and that they were compelled to buy all the material used of the nearest dealers and pay therefor the highest retail prices, and perhaps pledge the wagons to be built from these materials to secure the payment of the same. Were such the circumstances of our Eastern manufacturing competitors, would the wagon-makers of California have any fear of imported wagons? Would they not on the other hand see before them in the almost immediate future the great wagon trade of the Pacific Coast falling into their hands without a dangerous rival to dispute it with them?

The Extent of the Trade.

Did our mechanics ever think of the extent and value of this trade, embracing as it does all the States and Territories above named, with Oregon, Washington and Alaska on the north, and Lower California and other Mexican and South American States on the south? Did they ever think how much more destructive the climate of these Pacific territories is to wagons and all other agricultural machines which have to be used in the open air, than that of the Atlantic States?

A trade like this is worth making an effort to secure. And shall it be said that our California mechanics are too short sighted to see it; or seeing it, that they are not equal to the labor of securing and supplying it? But let us look once more to the relative positions of ourselves and our Eastern competitors. They occupy the vantage ground, and our position is truthfully portrayed in the picture we just above, in supposition, drew for them. Their capital, skill and energy are united, ours are divided. We cannot if we would, and we would not if we could, reduce them to our unenviable position. The only chance to get even with them and to become their successful rivals in supplying this great future trade of the Pacific Coast, is to do as they have done. Break up our little one-man shops by the wayside, unite our skill, obtain labor-saving machines, classify and economize our labor, command, and obtain, as we then can, unlimited capital, and first-class business capacity and experience to manage it.

Being in such a position, and in possession of equal facilities in these respects, united with the advantages of the points claimed above by our mechanics, would there be any need of fear as to imported wagons?

The Beet Sugar Interest.

The 600 acres of sugar beets at Alvarado promise a fair crop. The scanty rains will no doubt lessen the production; but the soil is a rich, dark loam and holds considerable moisture. Rating the crop at 20 tons to the acre and the sugar content at 8 per cent., we have 12,000 tons of beets and nearly 1,000 tons of sugar. Counting 3c per lb. profit, which is safe, we have \$60,000 profit on an investment of \$125,000.

The experience of one season gives assurance that our figures will not vary much from realization. Let it be understood that our friends at Alvarado are perfect masters of sugar-making. From the word "go," there has been no balk and no mistake in the working of their sugarie; and no sugar in the world excels theirs in public favor or in market valuation.

Between crops, the Alvarado sugarie is not idle. With small outlay, it has been temporarily converted into a refinery of crude imported sugar. That product is now in market and it is not excelled by any rivalry.

It may be mentioned that the Alvarado company is preparing to use Prof. Partz's economic plan for making sugar and for refining. Should this process prove a success, it will revolutionize the process and add to the glory of California invention.

The prospects for beets, at the Sacramento Sugar company's plantation, are not flattering. The Northers have so cut down the young plants that we are informed the company has abandoned 200 acres to other purposes. It is not known whether the company will put up sugar works this year or not; but Herr Erstein, the German Superintendent, is herein consultation.

The taxable property of Grass Valley, as shown by the assessment roll, is \$768,455.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, May 6th: Mr. Ray, proprietor of the Mountain mine on Red Mountain, is soon to push the work of opening up that property with vigor.... The demand for ore from Leviathan mine for the manufacture of bluestone at Dayton is constant and the profit such as to make it one of the valuable mines. Several large teams are kept running.... The shaft to connect the Silver Glance with the Monitor No. 3 works on the Tarshish lode, was commenced this week. It will be over 300 feet deep.... New riches are constantly opened in the Schenectady and Monitor No. 3 mines on the Tarshish lode.

AMADOR COUNTY.

GOOD RETURN.—*Ledger*, May 13th: The Kennedy mill after running fourteen days, was stopped and cleaned up. The result was a bar worth six thousand dollars, an average of fifteen dollars to the ton.

BELDINO MINE.—*Dispatch*, May 13th: A large amount of good looking rock has been taken out of a new mine near town, owned by Belding & Hatch, of Sutter Creek, and a portion is being hauled to the Mahoney mill for crushing.

CALAVERAS COUNTY.

LOWER RICH GULCH.—*Chronicle*, May 13: The battery on the Palomo, thirty-six stamps, is kept constantly employed. We are informed that the average clean up at this mine is \$4,000 per week. The Alexander mine, adjoining, is worked with profit. The stamps are never idle.

ANOELES.—The "Big mine" keeps twenty stamps crushing rock. The shaft is sunk over five hundred feet, the rock taken out averages well, and the mine is paying. The Sticks mine is being worked with flattering results. It is reported that the proprietor has concluded a sale of the mine and that it is to be transferred to the purchasers as soon as the rock out is crushed.

ENCOURAGING.—Bates & Co., in the old Mokelumne Hill Tunnel claim are getting first-rate pay. Fifteen dollars per day to the drifter is the average yield.

WHISKY SLIDE.—Hardigan & Co., proprietors of the quartz mine, have commenced the erection of a mill.

QUARTZ.—Swank Brothers, of Railroad Flat, have struck very rich rock at the depth of forty feet. The vein shows four feet in width and the ore sparkles with gold. The mine is on the Poe lead.

WATER OUT.—The Union Shaft Co., after weeks of labor, have drained their diggings at last. They commence taking out gravel as soon as a sump is sunk.

MACHINERY.—E. J. Reynolds, of Independence, is erecting machinery on the Fifield & Burkhardt mine near Railroad.

RAILROAD FLAT.—Cor. of same: The Wolverine commenced April 8th under the new proprietors. Up to May 3d, forty tons had been taken out. The first-class ore gives \$50 to \$60 per ton. The vein is large and easily worked.... Lewis Bros.' shaft is down 240 feet.... Thoss' arastra works splendidly.... It is said that the Sundermier mine is to have steam hoisting works.... Rock from the Invincible went \$23 per ton at Randolph's mill.... Buckeye is idle.... Anderson & Co. are doing well.

INYO COUNTY.

DEEP SPRING MILL.—*Independent*, May 6: Four bars worth \$407 were the product of a lot of San Juan ore left on the dump by a former operator as worthless. It assayed \$102.

ECLIPSE.—Forty-two stamps of the battery at the new mill are in position.

BULLION SHIPMENTS.—During the week ending April 22, there were shipped from the works of the Owens Lake Co. 482 bars weighing 39,420 pounds. During the week ending 30th, there were shipped from the Furnace of V. Beaudry, at Cerro Gordo, 1,925 bars of bullion, weighing 161,700 pounds.

KEARSARGE.—*Gold Hill News*, May 9th: The mill was to start up on Monday. A double rail track 2,000 feet long leads from the tunnel to the mill. The 60-horse power turbine works well. Six Wheeler pans have been added. The capacity is now 30 tons per day.

NEVADA COUNTY.

ENTERPRISE.—*Grass Valley Union*, May 13th: The Enterprise Co., working the claims at Buena Vista Hill 3½ miles east of Grass Valley, formerly known as the Shea mine, struck gravel on Friday. They

have four feet of gravel in sight, which prospects well.

LITTLE YORK.—*Transcript*, May 10th: The Little York Water and Mining Co., on Little York ridge, is doing an extensive business. The water is plenty and the Company has four sets of claims in operation, and the yield amounts to \$10,000 per month.

EUREKA TOWNSHIP.—Judge Caldwell, informs us that all the miners are at work and prospects are excellent.

MINING SALE.—Same of 13th: W. L. Tisdale has sold his entire interest, thirteen twenty-fourths, of the Star Spangled Banner mine to the company. The mill which has been shut down during the past week, will we understand be started up immediately for regular work. We understand that the sale of the Marietta mine, in Washington township is about concluded and that the amount to be paid is \$200,000.

OMECA.—*Transcript*, May 16th: This is now one of the liveliest mining camps in the State. There are ten claims in operation, and there is not an idle man in the place. The claims are yielding handsomely.

WEBSTER MINE.—*Grass Valley Union*, May 16th: The Webster had a "broken week" because of trouble with the boiler. Several days were lost. The clean up, however, was 78 ounces of gold, or about \$1,400, which gives a large profit. The gravel in the drift is looking as well as ever. Yesterday there was a panning out of \$8 to the pan.

EAST EUREKA Co.—This English company, which now owns the O'Connor mine, although its organization is not yet complete, has commenced work in earnest. The mill is to have 20 stamps, and everything will be first-class. The castings are the heaviest of the kind ever made in San Francisco. It will be ready for work by July 1st.

PLUMAS COUNTY.

NORTH FORK.—*Quincy National*, May 6: The Dutch Hill Co. have a good head of water, plenty of good ground and will make a big season's work. They picked up eight ounces last week in their ground sluice.... Ferguson & Wagner, have got the water running through their new ditch, and are working eight or ten men. The gold is coarse, and there's lots of it.... Benham & Co., near the mouth of Batte Creek, have completed their race, and expect to turn the river by the 1st of July. The low water this season will be advantageous to river miners.... The Carriboo boys—Orton, Hickman and the rest—are doing well.... Davis & Co., of Red Rock, have no water this year; but their ground is very rich, and they can afford to wait.

EUREKA Co.—We learn that the Co. are running twenty-eight stamps, and doing unusually well. The mine is looking splendidly, and prospects were never brighter. The first shipment for the season was made this week, and amounted to \$10,000.

GOOD QUARTZ.—Bidwell & Co., of Greenville, made a shipment, per last express, of \$4,000, the result of seven days' run of their mill. They have had twenty-two stamps in operation, and the rock, which is from the Union mine, paid about \$20 per ton.

ITEMS.—Elwell, Byers & Nave have disposed of their interest in the Seventy-Six quartz mine at Eureka, to John Parrott & Co., of San Francisco.... "Uncle" Johnny Radley, is getting splendid prospects, in regular old-fashioned "lead gold," in his claims near Butterfly Valley.

PLACER COUNTY.

FINE CLEAN UP.—*Herald*, May 13: Greene & Co. run 20 tons of quartz through mill last week and without cleaning their batteries took out \$8,000 in melted gold, making \$400 per ton. This makes some \$22,000 in gold taken from some 32 tons of quartz with this 4-stamp mill in less than ten days' work.

DUTCH FLAT.—Cor. of *Stars and Stripes*, May 11th: In 1868 Andrew Larson started without a cent to open the Central Claims on the "Big Blue" Channel. He has since put in two thousand two hundred feet of flume forty inches wide, and four hundred feet of flume forty-four inches wide, the latter in a tunnel which has been just completed through soft clay, with massive trap boulders, and so moist as to require the use of false timbers and a hoarded breast to work it at all. The tunnel is timbered with giant posts, standing on solid soils, the whole lagged with heavy lagging. This tunnel gives an additional fall of sixty feet, and his shaft at its head is crissed with strong timbers, then lined with planks and then again with sheet iron upon a portion. He will have a bank two hundred feet high which he will salute with five hundred inches of water from Hoskin's Dictator & Little-giant some time during this week.

COLFAX.—*Grass Valley Union*, May 13: Saturday they made their monthly clean up at the Rising Sun Mill after 22½ days crushing, and realized \$7,659. This, with five stamps. They have fifty tons of rock on the dump.

SIERRA COUNTY.

ITEMS.—*Sierra Age*, May 10: Mr. Kelly informed us on Tuesday that the Shamrock Co., at Fir Cap, took out about 100 ounces last week. About the same as the week before.... The Phoenix mill is at work again. There are 200 tons of good quartz at the mill.... The Bald Mountain Tunnel Co. at La Porte have struck gravel.

ITEMS.—Same of 13th: An old miner who has been prospecting in this county for years, showed us this week eight ounces of coarse gold which he got from some ground that he commenced to prospect this spring.... Beard & Co.'s reservoir at Eureka burst last week. The large body of water rushed down the hill, carrying all the logs and stumps with it in its course. This is a serious loss to the company in so short a water season as this is going to be.

Proposals will be received until 15th inst., to build a quartz mill for the Keystone Co.

TRINITY COUNTY.

DODOLAS CITY.—*Journal*, May 13th: Smith & Wallacs took out 200 ounces in their final clean up.... The high flume of the Tourat ditch across the mouth of Democrat Gulch, gave way Tuesday and is a wreck. It will cost \$1,200. The claims of Theodore & Crikard on Mahie's flat, have been paying \$8 or \$10 a day all this season, so far. Only one claim on Smith's flat has cleaned up yet—run out of fall—proceeds \$1,200.

TUOLUMNE COUNTY.

WORTH FINDING.—*Sonora Democrat*, May 13th: On Tuesday a company of Portuguese miners working a claim near Columbia found a piece of quartz containing gold. The piece weighed eight pounds in all, four and a half pounds, being gold and is worth fully \$1,000. The same claim had been worked by Capt. W. A. Eakin who recently sold it to the Portuguese.

YUBA COUNTY.

RICH CLEAN-UP.—*Marysville Appeal*, May 3d: The Smartsville Hydraulic Mining Co. yesterday sent down to this city amalgam, valued at \$54,000, the proceeds of a clean-up during the past week, after a run of between three and four months.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—*Elko Independent*, May 12th: The shaft in the Eldorado mine is down fifty feet, showing a ledge five feet wide at the bottom. The pulp assay of the last 10½ tons taken out was \$225.93, and all indications are favorable. Eight men are kept at work sinking.

ELY DISTRICT.

STRUCK IT RICH.—*Record*, May 7th: Frank Brown and others, owners of a mine in the neighborhood of the Bowery, lately commenced work on it, and a little over one week developed a ledge as rich as anything in the District. A week ago \$100 would have bought any one's interest in the mine, but since then \$2,000 has been refused for a fifth interest.

BIO ASSAY.—Same of 11th: On Monday John Cahill showed us a silver button, three-fourths of an inch in diameter, which was produced from one ounce of ore from the Bowery mine. The ore assays \$14,677.55 per ton.

BULLION.—Wells Fargo & Co. shipped on the 6th by way of Salt Lake, for the Meadow Valley Co., bullion valued at \$9,382.66, and for the Raymond & Ely Co. \$9,463.27. Total \$18,845.93. On the 8th and 10th, for the M. V. Co., 8 bars value \$9,558.94; for the Raymond & Ely 11 bars, value, \$15,020.65; total, \$24,579.58.

EUREKA DISTRICT.

EUREKA CONSOLIDATED.—*Sentinel*, May 13th: This Co. will put their two new furnaces at work next week. When the five are in blast they will reduce 100 tons of ore to bullion every 24 hours. There is no district in America that is producing as much lead bullion as Eureka, nor are any of them producing as high grade in silver.

BULLWHACKER MINE.—This has been sold to Messrs. Bernard and Sharp for a larger figure than any mine has been sold for in the district. The original discoverers have kept their property and developed it, and now they get enough for a year of labor to enable them to live in affluence the balance of their days. The new owners will at once erect a furnace and put on a large force of men.

TILTON FURNACE.—The capacity will be 25 tons per day, which amount can be taken from the mine (the Home Ticket) by 15 men. The ore requires no assorting,

but is all smelted as it comes from the mine. The Hon. S. S. Tilton has made a fortunate investment.

JACKSON.—Ore has been found in the shaft lately opened southward, between 500 and 600 feet from the old works. It will not be long before the Jackson furnaces are again turning out bullion.

TELEGRAM, 15th: The "Silver West" furnaces were to-day purchased by the Phoenix Co., will undergo a thorough overhauling, and start up in ten days.

HUMBOLDT.

STARTED UP.—*Silver State*, May 13: The Stewart Mill, belonging to the Arizona Association, is again pounding away, after a suspension of operations for three weeks, during which time a new hoiler has been placed.

NATCHEZ.—We learn from Mr. Pierce that work has been resumed upon the Natchez mine in the East Range, five or six miles south of Dun Glen, with favorable prospects.

RELIEF DISTRICT.—Cor. of the same: This is 20 miles east of the railroad. Orena is the supply point. In the Central Pacific mine, at present only five men are employed, as the company have an immens quantity of ore on the dump ready for the reception of the mill, for which arrangements have been completed. The Green Stone Co. have a good prospect, but go slow; only two men at work. The Hidden Treasure is owned by Samuel Grass & Co. They have run a tunnel 30 feet, and struck a fine ledge five feet in width.

REESE RIVER.

LANDER HILL.—*Reveille*, 13th: The richest and largest body of ore ever found in Lander Hill has just been laid bare in the 250-foot level of the Oregon shaft of the Manhattan Co. Some miners who took a contract to run a level of 50 feet, started at a point where no ore was in sight, but soon struck a 3-foot ledge of \$600-ore which has maintained its size and richness to the end of their contract.

NYE COUNTY.—*Carson Register*, May 10: Hon. M. R. Delano and his two partners have bonded their mine for sale August 1st for \$15,000, after refusing \$10,000 in cash. In case the bondee fails to come to time, another company stands ready to put up a mill for a half interest. The ore mills over \$100 per ton, and there are 1,000 tons on the dumps.

WASHOE.

CHOLLAR-POTOSI.—*Enterprise*, May 14th: During the week there have been extracted 1,810 tons of ore, and 1,711 sent to the mills. The average assay has been \$65.20. The company yesterday shipped \$38,000 in bullion.

YELLOW JACKET.—This mine is yielding 180 tons of ore per day, which assays \$35 per ton. A new incline is being started on the 1,100-foot level. The mine is yielding well throughout.

BELCHER.—The Co. are still engaged in opening and retimbering the drift to the northward on the 850-foot level.

CONSOLIDATED VIRGINIA.—Fair progress is made in the drift north from the main west drift, though they are in very hard blasting rock. The water having decreased, they commence drifting south toward the Gould and Curry from their main west drift.

SUTRO TUNNEL.—The Tunnel was in yesterday 1,963 feet. The ground has been very hard.

BUCKEYE.—The Co. are pumping out the old lower works. The Franklin mill is running to its full capacity on ore from the upper level.

SIERRA NEVADA.—This is still lying idle. The injunction suit brought by the Kenosha Co. will come up for hearing on the 29th instant.

SAVAGE.—On the lowest level raises from the cross-cuts are pushed upwards rapidly, to prospect the vein between the ninth and tenth levels.

OVERMAN.—The Co. are taking out 35 tons of ore per day which is crushed at the Devil's Gate mill. The ore is coming from the 226-foot level.

HALE AND NORCROSS.—Preparations for sinking the incline below the present lowest level are being made. The east drift from the bottom of the shaft is being run to connect with the top of the proposed incline. The yield of ore for the past week has been 175 tons per day, principally from the eighth level.

GOULD AND CURRY.—The sinking of this main shaft will soon be commenced. The prestige attached to the name of this mine is causing attention to it from our monetary kings.

JUSTICE AND INDEPENDENT.—Under the new management 25 tons of ore per day have been taken out from this mine for the past six weeks, through a tunnel 600 feet in length, which starts in Gold Canyon,

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 25TH.

GRAIN SEPARATOR.—Daniel Best, Yuba, Cal.

WASHING MACHINE.—Henry A. Gaston, San Francisco.

EARTH-AUGER.—Thomas Orchard, Sacramento, Cal.

REFINING SUGAR.—August F. W. Partz, Oakland, Cal. Antedated April 22, 1871.

LUBRICATOR.—William Eaton Phillips, Silver City, Idaho Ter.

RAILWAY-SWITCH CHAIR.—Geo. H. Scougale, Carson City, Nev.

STORE-TRUCK.—Andrew V. Smith, San Francisco.

FIRE-KINDLING.—John W. Still, San Francisco.

BLASTING-FUSE.—Richard Uren, Santa Cruz, Cal.

FOR THE WEEK ENDING MAY 2D.

CARPENTER FOR AIR AND GAS.—Louis Marks, San Francisco, Cal.

SAND-CAP FOR HUBS OF VEHICLES.—George H. Nevens, Livermore, Cal., assignor to himself and R. N. Caughell, same place.

HYDRAULIC APPARATUS.—Phineas Franklin Powers, Genoa, Nev.

GARDEN-SPRINKLER.—John I. Spear, San Francisco. Antedated April 27, 1871.

ROLLER-SKATE.—Peter R. Borein, San Leandro, Cal.

DIVISION-PLATE FOR COOKING-STOVES.—S. C. Ewing, Hill's Ferry, Cal.

SECURING DENTAL FILLINGS.—Charles H. Mack, Portland, Oregon.

WASHING FLUID.—Edward Henry Neill, San Francisco, Cal., assignor to himself and Emlen Painter, same place.

ORE-CONCENTRATOR.—William C. Stiles, Nevada City, Cal. Antedated April 22, 1871.

TEA.—C. Adolphe Low & Co., San Francisco, Cal.

REISSUES.

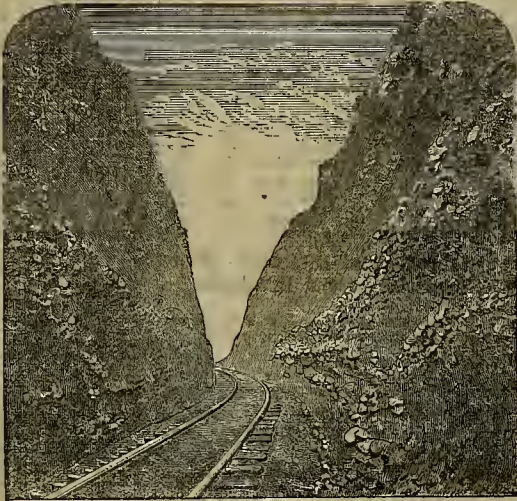
PISTON-PACKING.—Orrin Collier, Sacramento, Cal. Patent No. 98,232, dated December 28, 1869.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

GRAIN-SEPARATOR.—D. Best, Yuba, Cal. This invention consists in a series of peculiarly shaped screens, to separate and clean the various qualities of grain, and in the use of feeding and returning elevators, by which the grain can be fed to the hopper with very little labor, and by which it can be returned to the hopper for a second cleaning, if required. The discharge spout for the second quality of grain is so arranged that it will either discharge the material immediately or return it to the returning elevators. The first quality is allowed to fall upon a screen which has a peculiar tossing motion and throws the grain into the discharge spout, or (by reversing the driving pulley) retains it as long as desired. A set of angular plates is introduced between the screens, and by their action and the shape of the screens the blast is directed upward instead of backward.

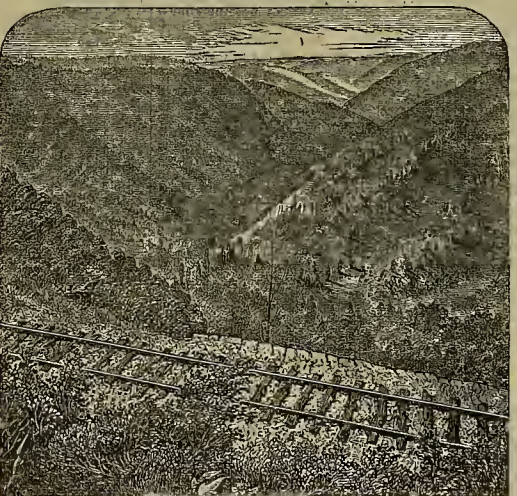
LUBRICATOR.—W. E. Phillips, Silver City, Idaho Territory. Among the new lubricators offered the public, this one from Idaho appears to be worthy of a high place. The lower part of the cup is so arranged that the oil must drop from it through an open space, allowing the feed to be easily seen. The feed pipe has a spiral or other suitable shape, with its center in a line with the center of the shaft, and takes oil from the cup at that point. Its outer end connects with the crank pin so as to lead the oil to the interior of the pin, whence it passes through small holes (or is led in other suitable manner) to the journal of the box at the crank end of the pitman or connecting rod. Thus the oiling of the crank pin is effected



BLOOMER CUT.
172 miles from San Francisco—Altitude 1,252 feet.

without danger or trouble or stopping the engine, by the centrifugal force imparted by its revolution.

RAILWAY SWITCH CHAIR.—G. H. Scougale, Carson City, Nevada. This invention consists in the use of a series of blocks of different lengths, which are shaped like a section of a rail, and so fitted in the chair that different lengths may be obtained, and by this means an adjustment can always be had to accommodate the expansion and contraction of the rails, or the creeping of



AMERICAN RIVER, Cape Horn.
198 miles from San Francisco—Altitude 3,800 feet.

a line of rails when placed on a grade, so that it will not be necessary to cut the rails frequently, as is now the case.

STORE TRUCK.—A. V. Smith, S. F. Mr. Smith's invention relates to the improved construction of the trucks which are used about stores and wharves. It is an ingenious arrangement by which the truck is held firm and prevented from rolling back when the front is depressed to receive a load; and, moreover, the parts are so arranged that the truck can be easily stopped and held on an incline.

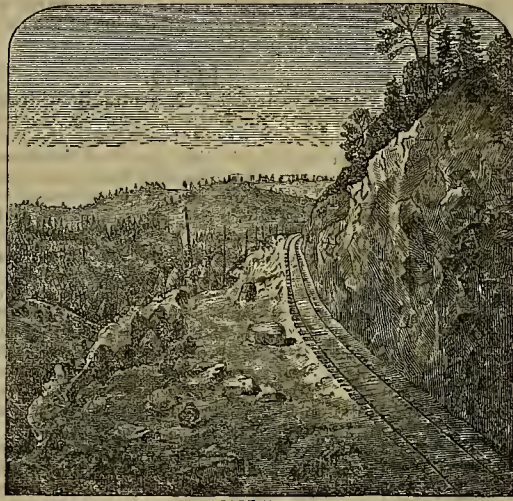
FIRE-KINDLER.—J. W. Still, S. F. Of this fire-kindler, called Cooo Pino, we have already spoken at length.

Editorial Notes Eastward.—2.

Sacramento to Dutch Flat.

Leaving spunky little Sacramento, we are fairly started on our trans-continental journey. We pass the workshops of the Central Pacific Railroad, where busy industry holds sway, the hospital of the company, founded on a wise benevolence worthy of wide emulation, and cross the long bridge over the American River whose waters we shall again see under the most varying conditions of natural wonder and beauty.

It is not long before we get in among the mountains and ravines and around sharp curves and up steep grades.



CAPE HORN.
197 miles from San Francisco—Altitude 3,800 feet.

Ninety-four miles from Sacramento, we are passing through a deep cut, the so-called Bloomer Cut, at an elevation of over twelve hundred feet. Up we go, past villages and towns, and over bridges, with doubled engines, until we suddenly meet an apparently impassible barrier, a deep, wide abyss in which rushes the American River. Yet we must somehow or other reach that opposite hill, and while we are thinking of the possibility or impossibility, the train has been curving along one side of the

wondrous grandeur of the spot, where we might stay for days and weeks without danger of satiety. Yet we really see more than we are aware of, for afterwards we collect the stray fragments of the scene in memory, and find the picture more complete than we thought in our first moments of dazzled rapture.

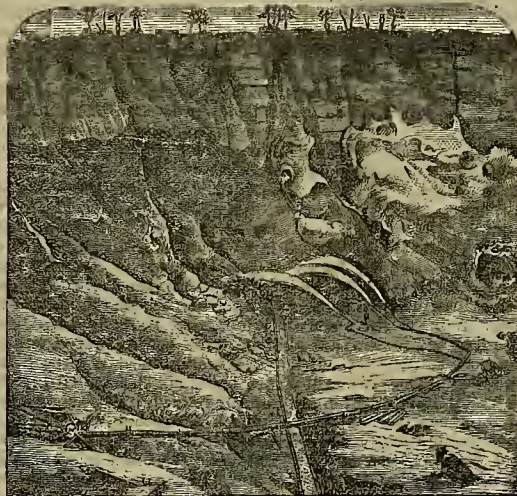
Nevertheless, the more we memorize on the view, the stronger grows our desire to return to the place when we find a "convenient opportunity," an opportunity which there is too much danger of never coming.

But a few moments elapse, and we are among the scenes of mining industry. We have previously seen evidences of like operations on the road,—ditches coiling around the hillsides, and large piles of gravel. At Gold Run and Dutch Flat we see more of this. The deep wounds in the earth gape at us, and present no beauty, except perhaps to the very practical mind. It is pleasing to think of the vast treasures lying in the earth, yet to be taken out by man, and of the riches already accumulated. Still a picture of the work is more sightly than the reality.

The orchards and gardens which exist at these places, many of them really fine, lend no slight adornment, and suggest the idea of how much more can be done in this way to improve our mining towns.

D.

NARROW GAUGE RAILROADS.—We have received a copy of the report of the Joint Committee of the Massachusetts House of Representatives on narrow gauge railroads. We have previously given extracts therefrom. We here condense a few items about narrow gauge roads which have been built. Festiniog road, Wales,—gauge, 1 ft. 11½ inches; 30 lb. rails. Another road in Wales has 2 ft. 6 in. gauge and is eight miles long. Brölthol road, connecting with the Cologne and Gies-sen R. R., Prussia,—gauge, 2 ft. 7 in.; 22 to 26 lb. rails. The Thond-gan Railway, in Norway,—built in 1864; gauge, 3 ft. 6 in. Other roads have been built in Norway, Russia, Queensland and South America. Unaio Valenciana Rail-way,—15 miles long; 40-lb. rail. In the mining districts of Pennsylvania are several 2 ft. 6 in. roads. In Canada, 400 miles of 3 ft. 6 in. road are projected, of which 150 miles are under contract and about 15 miles



HYDRAULIC MINING, Gold Run.
202 miles from San Francisco.

in operation. In Australia, 250 miles are built and 250 more projected, of this gauge. On these roads the curves occur up to 255 feet radius, and grades up to 169 feet to the mile. The engines vary in weight from 7 to 15 tons. The Report says in conclusion:—So well satisfied is your Committee of the value of this improvement in railroad science, that they feel obliged to go a step farther with their report, than merely to present the facts upon which their conviction rests. They feel it their duty to propose, even at the expense of a partial deviation from legislative usage, enactments, even if of only a provisional character, which shall be sufficient to enable communities to avail themselves of the improvement during the present year.

POPULAR LECTURES.

The Study of Modern Languages.

[Prof. Paul Pioda before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Fifth Series. Reported expressly for the Press.]

LECT. I. May 13. Prof. Pioda, in commencing his lecture, remarked on the varied aspects under which language could be considered. It is the vehicle of thought, allowing of the communication and expression of ideas and facts. But in addition to its connection with the present, it is also connected with the past, with the whole history of the human race; it is a link joining together every tribe and nation; it shows the relations between the most distant peoples. The study of the languages, of their changes and variations, of the similarity and dissimilarity of one with another, has enabled us to discover many new facts in the history of former nations, and has cleared up many obscure points; has opened up many new avenues of knowledge and has, through the recent works on philology, been raised to the dignity of a science.

Prof. Kellogg had pointed out, in previous lectures, the connection of the classics with the modern languages, and it was the province of the speaker to-night to dwell on the affinity of the chief modern tongues, and to show some of the advantages to be derived from their study. The practical benefits arising therefrom were, perhaps, nowhere better or more forcibly illustrated than in this cosmopolitan city of San Francisco.

This study is an excellent means of expanding the mind, is the only one, it has been said, which develops all the faculties at once. It is not merely the study of words, but also of thoughts, of facts and histories. Every idiom is a system of philology. We learn thereby of the present and of the past, and can form some judgment of the future. The study should be commenced early in life when the lingual organs are yet pliable; but on this necessity of early training in the modern languages, the Professor would dwell at length at a future time.

This study gives us a better knowledge of English, and is an indispensable auxiliary to a general education. The Professor remarked on the similarity of many modern languages which have the same origin to a great extent, but vary in the termination of words. He gave examples of this similarity and also of the positive identity of words in English and in other tongues. Languages, like men, are imperfect, and need the assistance of one another to complete themselves. Hence many words and quotations are transferred from one to another, being required to fill gaps, to express precise meanings, to denote particular objects, or for the sake of euphony. Many examples were given of this. In this connection the Professor compared the musical geographical names taken from the Spanish in our State, as San Francisco, San Mateo, Santa Cruz, Santa Clara, etc., with our rough, harsh American names, as Dogtown, Red Dog, Hangtown, Shirt Tail Canon, etc.

That language which is subject to the greatest number of changes of inflection is the best for analytical study. Now the English is very poor in this respect. A regular verb, for instance, has six, and an irregular verb seven changes; while in the Spanish and Italian, a verb can be conjugated throughout without a personal pronoun, the termination denoting all that is necessary. For example, "love" may be the 1st, 2d, or 3d person, the singular or the plural number, etc., while "amo" can be only one certain person, number or tense. The English is very deficient throughout in inflectional changes. It is, indeed, the only language which can be learned mechanically—without understanding its principles and theories. The Professor dwelt on these points, comparing English with other languages, and then remarked also on some of the superior points of our language.

The Latin and Greek are, perhaps, the best media to show the theory of grammar. The revival of their study did more than anything else to free the minds of men from the chains of the dark ages in Europe. They enter into many living languages and are without question of the highest importance. Their study, however, demands more time than can be given by the many, and belongs rather to a higher in-

tellectual course than the multitude can afford to take. The modern languages, however, show a more evident practical bearing, are found in general more interesting, especially to the young, and are excellent for training the mental faculties and expanding one's ideas. The Professor spoke fully on the importance of their study, showing how a knowledge of a new language teaches a new history, explains facts, gives a new point from which to view some of the important features of the world, enables us to judge more clearly of the character of a foreign nation, etc., etc. The works of such a man as Shakespeare, for instance, cannot be translated, but must be read, to be fully understood, in the original. Attention was called to the fact that the study of languages opened a field for women, for which they seem to have a peculiar aptitude. A language spoken by a woman is modified and smoothed down in its tones and sounds, and rendered more musical.

In concluding his lecture, which was well written and very interesting in its treatment of the subject, the Professor remarked that the lower the position a man holds, the greater is the practical advantage to him of knowing other tongues than his own. To the rich man it is more a means of finishing off his education and increasing the refinement of his mind, but to the people it presents special inducement which can be turned to practical every-day benefit.

An Immense Aquarium.

A company was lately formed in London, with a capital of \$60,000, to make at the northern end of the Crystal Palace (partly burnt down in 1868) an aquarium of large size, which is nearly finished. It contains all the successive improvements which experience has suggested since 1846. The aquarium is 312 feet long, and 20 feet high, and in width 53 feet in some places, and 35 in others. The public portions of the building consist of three rooms—a saloon, 184x16½ feet; a south room, 30 feet by 8½ feet; and a north room, 14 feet by 8½ feet. Besides these, there are a work room, a steam engine and boiler room, an apartment to contain the heating apparatus, two store rooms; an attendants' gallery running from end to end of the entire building, and an office.

There are 150,000 gallons of sea water, weighing 700 tons, of which 130,000 gallons are in a reservoir below the saloon, and 20,000 gallons are distributed among 60 tanks containing the animals. These tanks are of various dimensions and proportions, varying from 75 gallons to 4,000 gallons each, and ranging in depth from 6 inches to 6 feet of water, and therefore they will suit the requirements of a great number and large variety of creatures from sponges to fishes. The sea water is raised into these tanks from the reservoir below the saloon; and it flows through and among them, falling down a succession of levels, so that in its progress it may do as much work as possible, until it enters the reservoir from whence it came, and from which it is again and again pumped by steam-power, at the rate of from 5,000 to 10,000 gallons an hour, continuously day and night; and by means of this aerating motion, coupled with the oxygenation derived from growing plants, no change of water will be needed, and the quantity (brought from Brighton by Mr. Hudson) will be used year after year indefinitely, the loss of fresh water by evaporation being supplied weekly by the addition of an equal quantity of water distilled on the premises.

One novel feature in the undertaking is that most of the part of it are in duplicate. Thus, there are two steam engines, each of three horse-power, and especially arranged for continuous and economical action, two steam engine boilers, two pumps, and two distinct sets of receptacles for animals; tanks 1 to 38 being for the public exhibition of animals, and tanks 39 to 60 being not publicly exhibited, but intended to contain collections of creatures purchased when they are cheap, or at seasons when their transport by rail is easy. The use of this power in reserve in the machinery is so that if any accident happens to one part of it, the other portion is ready to take its place, and thus the uninterrupted motion of the sea will be so far represented.—*Iron Age*.

HOTEL CHANGE.—The Orleans Hotel, on Post street, this city, having passed into the hands of Mr. B. R. Boynton, is to be known hereafter as the Morton House.

COLORADO PAPER.—A late issue of the Colorado Herald was printed on paper manufactured at the Central City Paper Mill.

GOOD HEALTH.

Climates for Invalids.

The great advantage often derived by invalids from a change of climate is so apparent that a large amount of attention and research has been expended by Eastern writers on hygiene, to decide upon the best localities for invalids to resort to. A work upon this subject has recently been published by Wood & Holbrook, of New York, entitled "Climates for Invalids," which is very highly spoken of, both for the instruction it affords to invalids, and also for the general information it contains with regard to the surroundings and climatic conditions of the various localities recommended as a resort for invalids. According to the notices we have read of it, for we have not seen the work itself, it describes quite fully the various advantages possessed by different sections of the Atlantic and Mississippi States, and central portions of this continent; but makes no allusion to the Pacific Coast, which probably possesses more advantages in this respect than all other localities combined. east of the Rocky Mountains. Will not some one "write a book" showing the advantages of the various localities on this coast as a resort for invalids?

We have already, in previous issues, alluded to some of the advantages possessed by Los Angeles, Santa Cruz, and some other counties in this State, and it may not be out of place to give, in this connection, the following, which we clip from a late number of the *Atlas*:

Santa Barbara as a Sanitarium.

Dr. Brinkerhoff says that in eighteen years practice he has not known one case of diphtheria or scarlet fever. He has known three cases of dysentery of a mild type and an equal number of cases of membranous croup. He never heard of fever and ague originating in Santa Barbara. Sometimes patients came there with the disease. In all cases their cure is rapid and permanent. Santa Barbara has a singular immunity from small-pox when it prevails almost everywhere else. The doctor has seen three cases of small-pox, at wide intervals, which were cured with unusual dispatch. But the most marked exemption from disease is among children. They escape most of the complaints so fatal elsewhere. To account for this healthful record, the doctor refers to the presence of petroleum so extensively in the ground and in the springs which gush from the earth and cover the sea for many square miles with an iridescent oil of pungent odor. This mineral oil so taints the waters of that county that there is very little good drinking water to be obtained in wells. So volatile is this mineral oil that the air is everywhere imbued with it; and, like carbolic acid, it disinfects all miasmatic exhalations, while its own effluvia appears to be innocuous.

It may be mentioned that land thereabouts is held so far above the views of buyers as to invite few settlers.

WALK ERECT.—Walking erectly not only adds to manliness of appearance, but develops the chest, and promotes the general health in a high degree, because the lungs, being relieved of the pressure made by having the head downward and bending the chest in, admit the air freely and fully down to their very bottom. An erect position should be obtained by a effort of the will. The use of braces to hold up the body is necessarily pernicious; for there can be no brace which does not press upon some part of the person more than is natural, hence cannot fail to impede injuriously the circulation of that part.

PRESERVED MEAT.—Dr. Stein, of Dresden, while lecturing lately on the preservation of food, opened a tin canister of meat, preserved by what is known as Apert's method, and prepared by him in 1851. The meat, on examination, it is said, was found to be as fresh, and of as good a flavor, as when placed in the canister nineteen years previously.

LEMONS AND BILIOUSNESS.—As a general rule lemons are good for biliousness. Sometimes, however, the stomach is not in a condition to hear so strong an acid. In cases of biliousness the acid and sub-acid fruits should constitute a large part of every meal. There is nothing better.

Is it Air, or Something Else.

The entrance of air into a wound is the dread of the surgeon. When an abscess is opened he must prevent the air from mingling with the blood-clots if he would avoid putrefaction and its teaming accompaniment of animalcule life. Some eminent London surgeons inform me that they never squeeze an abscess, lest when the pressure is relaxed the air should be sucked in. Now, whence this dreaded power? Is it the air itself that causes putrefaction, or is it something carried mechanically by the air? A follower of Guy-Lussac would affirm the former; a heterogenist would refer the animalcules to "spontaneous generation;" a holder of the germ theory would ascribe the putrefaction to seeds or eggs floating in the atmosphere, and which, when sown upon the wound, sprout into this crop of minute organisms. Do any data exist which will enable us to say, with certainty, which party is right? I think so.—*T. H. Huxley*.

Professor Huxley takes the latter view of the subject, and believes air is poisonous to wounds because of the germs in it which grow. How much injury these germs do to the air-passages is not known, but no doubt these passages are not so susceptible of injury as fresh wounds. They are used to their presence to a certain extent, still they must do harm in the lungs, and who can tell how much?

BONES INFLUENCED BY FOOD.—M. Passillon, who has experimented on pigeons and rats with a view to determine the change in the composition of the bones, when fed on different kinds of food, reports to the French Academy that on analyzing the bones of the pigeons that had been fed with the strontia, there was found in a hundred parts of the ash of the bones:

Lime.....	46.70
Strontia.....	8.45
Phosphoric Acid.....	41.80
Phosphate of Magnesia.....	1.80
Residue.....	1.10
	99.80

The ash of the bones of the rats that were fed with the alumina gave:

Lime.....	41.15
Alumina.....	3.65
Phosphoric Acid, etc.....	51.95
	100.00

While in the bones of those fed with magnesia were found:

Lime.....	46.16
Magnesia.....	3.56
Phosphoric Acid.....	50.29
	100.00

A CURE FOR LOW SPIRITS.—Exercise for the body, occupation for the mind; these are the grand constituents of health and happiness, the cardinal points upon which everything turns. Low spirits cannot exist in an atmosphere of bodily and mental activity.

CAUSE OF POOR TEETH.—"What is the principal cause of the almost universally defective condition of the teeth of the American people? There is no country on the globe where the people suffer so much from poor teeth, and where dentists are so common as here. Among some nations, indeed, unsound teeth and dentists are unknown."

There are many causes which aid in destroying the teeth; as using very hot drinks and food, the use of saleratus, uncleanness, etc., but the principal cause is the feeding of children upon fine flour bread, fat, sugar, and other carbonaceous articles, to the exclusion of food that contains lime, phosphorus, silica, and other minerals in an organized form, which are necessary to the proper development of the teeth, and especially the outer covering or enamel. The system can not make something out of nothing, neither can it make sound, healthy teeth unless it has the necessary material supplied in the food. Fine flour does not contain the required material, while unbolted wheat meal does, and children who have plenty of the latter to eat will have good sound teeth.—*Herald of Health*.

CLIMATES FOR WEAK LUNGS.—In a great majority of cases a dry mountain atmosphere is best for weak lungs. The water should be pure and soft, and the temperature as nearly uniform as possible. The eastern slope of the Rocky Mountains—Montana, Wyoming, and Colorado—also Minnesota and Dakota, supply these conditions, and are the most desirable places for persons with weak lungs to spend the summer months.—*Herald of Health*.

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. N. STRONG,
W. B. EWER, JNO. L. BOONE,
Office, No. 414 Clay St., below Sansome.

Subscriptions payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, May 20, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, May 17, 1871. Legal Tenders
buying @90%; selling @90%. Gold in New York to-day
111½

Table of Contents.

Safety Boilers, Ill.; Wild Geese in Montana. 305	MECHANICAL PROGRESS.—Burnt Iron and Steel;
Safety Device for Water Pipes; Onban Artil-	lery; Canal Boat Propulsion; Best Form of
Rails; Krupp and Rodman Guns; Immense	Engine; Locomotive Reform. 306
SCIENTIFIC PROGRESS.—Regional Elevations and	Subsides; Subterranean Electrical Distur-
ances; Plant Remains in Coal; Fossil Ser-	pents from Wyoming; Darwinianism. 306
Irrigation by Iron Pipes; Bull Run District,	Nev.; California Wagons vs. Eastern Wagons;
Best Sugar Interest. 307	MINING SUMMARY; Shareholders' Directory;
Mining Stocks; Market Rates. 308, 309	List of Patents; Notices of Patents; Editorial
Notes Eastward, Ill.; Narrow Gauge Rail-	roads. 310
Study of Modern Languages; Immense Aquar-	ium; Climates for Invalids; Air or What;
Bones and Food; Poor Teeth. 311	Notices to Correspondents; Concentration of
Ores; Important Irrigation Enterprise; Sand-	Caps for Axle Boxes, Ill. 312
Artificial Limbs, Ill; Reducing Chloride of	Silver. 313
Pork Unclean; Washing Dishes; Cooking; Do-	mestic Receipts; Mechanical Hints. 314
Notes on Contributions to Our Cabinet; Kauri	Gum; New Incorporations; Erie Sleeping
Coaches. 315	

Notices to Correspondents.

ERIE CANAL.—P. R. Virginia, Nev. The Erie Canal is 363 miles long. It was completed in 1825 at a cost of \$7,143,789, when it was 40 feet wide at the surface of the water, with 4 feet of water, 84 locks, 90x15 feet, and had boats of 80-ton burden. The increase of business caused its enlargement. The dimensions now are: 70 feet in width at the water level, and 42 feet at the bottom; 7 feet depth of water at the shallowest points; tow-path, 14 feet wide; length of locks, 100 feet. The boats average 96 feet in length and 17½ feet in breadth; depth of hold, 9 feet; custom-house measurements, 120 tons on an average, but they carry about 230 tons in practice. When empty, they draw 2 feet of water, and when loaded to full capacity, 6 feet.

ACADEMY OF SCIENCES.—At the regular meeting, last Monday, there were presented by Captain C. M. Scammon, U. S. Revenue Marine, two specimens of bone of the Right Whale, taken at Onalaska Bay, Behring Sea, 1869; also one piece of bone of a Right Whale taken at Monterey, Cal., March, 1871. The main object of the meeting was to adopt a constitution, which was done.

SUTRO TUNNEL COMMISSIONERS.—The Commissioners appointed by the Government to visit and report upon the Sutro Tunnel are Dr. W. Newcomb, Gen. John G. Foster and Gen. H. G. Wright. Dr. Newcomb was recently a resident of Oakland. He is now of the Cornell University, New York, and was connected with the recent San Domingo expedition.

SAN RAFAEL MECHANICS' INSTITUTE.—We see that enterprising citizens of San Rafael have organized a Mechanics' Institute, which is a most excellent action. The officers are I. Shaver, President; H. A. DuBoise, Vice-President; U. M. Gordon, Treasurer; V. D. Shoub, Secretary; J. Sims and H. H. Butterfield.

REDUCTION WORKS AT CORINNE.—The Alger reduction works are in the course of construction at Corinne, Utah. Gen. Hefernan and Mr. G. W. Goff are the proprietors.

A RAILROAD is projected in Humboldt county, from Hookton to tide water on Eel river.

Concentration of Ores.

We see by the *Reese River Reveille* that Mr. Thomas Wren, formerly of Austin, but now of White Pine, will shortly introduce a process at Austin for concentrating ore. "Mr. Wren learned by experiment that in the ordinary rock breaker, the metalliferous portion crushed more readily and much finer than the barren quartz, and has consequently attached to such a breaker a system of screens, so that the valuable matter is separated from the worthless."

Mr. Wren was lately in this city, and tried a series of experiments which were conducted by Messrs. Riote & Luckhardt, of the Nevada Metallurgical Works, 21 First street. These gentlemen, who are excellently fitted for such tests by their superior experience, knowledge and ability, made the experiments with great care, and the results are equally reliable and interesting. We have obtained from them a few notes on the subject.

Samples of what is known at Austin as "Chloride ores" were first tested. This is a rock which is partially decomposed, and holds a decomposed mineral, in which there is considerable chloride of silver. The metalliferous part is brittle, and therefore separable by proper crushing from the harder quartz. We give three tests, which may be taken as representatives of the whole number made.

1st. Ore assaying \$43 per ton was crushed through ¼ inch opening. Of this, 50 per cent. passed through a No. 4 screen, and assayed \$50.27 per ton. The remainder, which would not pass the screen, assayed \$18.85 per ton.

2d. The same ore crushed in the same way; 39 per cent. passed through a No. 10 screen, and assayed \$61.26 per ton. The residue assayed \$32.98 per ton.

3d. Ore assaying \$28.26 per ton was crushed through ¼ inch opening. Of this, 40 per cent. passed through a No. 10 screen and assayed \$36.26 per ton. The residue assayed \$15.71 per ton.

The first test shows that one-half of the ore was increased 17 per cent. in value by this simple process; the second, that nearly two-fifths was increased 42 per cent.; and the third that nearly one-half was increased 36 per cent. The residues were subjected to a similar process and gave similar results.

These experiments are very interesting. There are large amounts of ore at Austin which is too poor to pay for treatment under present conditions. Yet by passing it through a crusher and over a screen, it would appear that about a half could be recovered of a value sufficiently great to make handsome returns; and the expense of this would be only a very small sum. The remaining half could again be treated in a similar manner to an extent to be limited only by the financial conditions of the place.

Similar experiments were tried with the sulphuret ores of Austin, but as the sulphurets are so finely impregnated throughout the quartz, no perceptible gain was experienced. The mineral must be of a nature different from the gangue and in bodies of proper size. The rock breaker merely takes the place of "cobbing" by hand, but it is infinitely cheaper and works on material which cannot be separated by manual labor.

In introducing such a process, the nature of the ore will demand that experiments should be made to determine the proper fineness of crushing and the proper size of the screens; while the cost of milling (which determines the paying value of the rock) and other purely pecuniary considerations will determine the extent to which it can be carried. As stated above, and shown by the experiments, only certain ores can thus be treated; but the process is applicable to an extent which will make it of great value to certain localities.

An Important Irrigation Enterprise.

An extensive system of irrigation is to be undertaken in the San Joaquin valley, by some of the leading men of this city. We to-day give a full record of the various canals proposed, as taken from the certificate of incorporation, which has been filed at the office of the county clerk in this city. The objects of the company in the construction of these canals is not only to provide water for irrigation, when and where needed; but also to afford means for transporting passengers and freight, and to furnish water power for farm and manufacturing purposes.

To accomplish this end, feeders will be cut from mountain lakes and streams to supply more directly and fully, water to the small lakes in the southern part of the valley, which will thus become immense reservoirs for supplying a portion of the proposed canals during the long, dry summers. Canals will also be run along the principal divides between the streams flowing down from the Sierras, which will be conveyed down into the main valley, whence, by branches, water can be carried to almost every quarter section throughout the entire eastern portion of the great San Joaquin and Kern river valleys.

To provide irrigation for the western portion of these valleys an immense main watercourse or canal will be opened from Buena Vista Lake in the southern portion of Kern county, skirting northwardly along the foot-hills of the Coast Range, as high above the valley as practicable, and passing through its entire length, until it reaches the San Joaquin at or near Antioch. The length of this main trunk will be some 230 miles, making reasonable allowances for the necessary sinuities. From this main trunk (which will also be used as a canal for transportation) lateral ditches will be constructed to convey water for irrigating the valley below. These ditches, when they leave the foot-hills will also furnish a large amount of water power before the water will be required for irrigation.

The scheme here presented is one of magnificent proportions; but none too great for the region of country which it is proposed to benefit. The capital stock is set down at five millions of dollars. Of course it is not expected that the whole scheme will be put through at once; but it is to be hoped that a commencement may be made this season, and that the work will be pushed forward as fast as practicable to its full completion. Its completion would create values equal to many times its cost in the appreciation of the land which it would benefit; as it would render possible a population in those valleys of from one hundred and fifty to two hundred thousand people.

We append hereto a more particular reference to the several canals proposed, as copied from the certificate of incorporation. Its perusal will enable any person having a good map of the State before him to trace out the lines of the canals, and form a very fair conception of the magnitude and completeness of the work proposed.

1. A canal leading from Kern river, at or near its westerly intersection with the north line of township 29 south, Range 28 east from Mount Diablo base, and meridian to Kern, Buena Vista and Tulare Lakes.

2. A canal leading from Buena Vista Lake, in Kern county, with a feeder from Summit Lake in Fresno county, and running along the west side of the San Joaquin valley to a point at or near Antioch, in Contra Costa county.

3. A canal leading from a point on King's river in Township 13 south, Range 33 east, Mount Diablo base and meridian, at or near the point where water is now taken out of said river for irrigating purposes, to Summit Lake.

4. A canal leading from a point on the south side of the San Joaquin river, at or near Millerton, to Summit Lake.

5. A canal leading from the north side of San Joaquin river, nearly opposite Millerton, along and near the base of the foothills as possible, to Bear Creek; the same to be conveyed by flumes, where

necessary, across the intervening streams, and to have branches between each two of said streams running westerly, for irrigating purposes.

6. A canal leading from the south side of Merced river, at or near the falls of said river, westerly, to the San Joaquin river.

7. A canal leading from the Tuolumne river, on its south side, at or near Lagrange, westerly to the San Joaquin river.

8. A canal leading from the Stanislaus river on its south side at or near Knight's Ferry, westerly to the San Joaquin river.

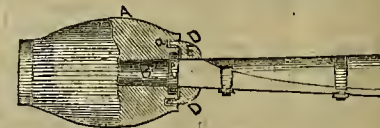
All the canals to be constructed with all the lateral canals and branches necessary for the purposes specified, particularly for irrigating.

Capital stock of five million dollars divided into 50,000 shares of \$100 each. Trustees:—J. D. Walker, T. Parrott, Adam Grant, F. D. Atherton, T. H. Selby, Milton S. Latham, Wm. S. Chapman, J. Friedlander, Alfred Godeffroy.

Sand-Caps for Hubs of Vehicles.

Mr. George H. Nevens, of Livermore, Alameda county, Cal., has invented an improved sand-cap for axle-boxes, which promises to be of excellent service in excluding all sand and dust, and which is easily applied to any wagon. We here give a simple illustration and description of the device.

The invention consists of a ring of metal which is made conical in form and has its smaller end attached to the axle near the collar. The edge of the larger end projects into a groove, which is formed in the inner end of the hub, and thus effectually protects the collar and axle-box from sand and dust. In the illustration, A is the hub of the wheel, B the axle, which may be fitted in any of the ordinary ways, C the collar, and E a ring of wood or metal, which may be put on by removing C. In



the case of axles already made, or in new work, the ring may be slipped on before the axle is welded up.

The metal cap, D, may be cast with the ring, E, if the latter is of metal; or, if the ring is of wood, the cap can be formed of sheet metal and suitably attached. This cap is conical, its edge entering a groove, a, in the end of the hub, as indicated. Its shape causes any sand or dust, that may fall on it, to slide or fall away from the hub.

The simplicity of the device is evident from the above, and its value must be very great everywhere, and especially great on our sandy, dusty plains. We recommend it to the consideration of farmers, miners and mechanics. A patent has been secured, through the SCIENTIFIC PRESS Patent Agency, to Mr. Nevens, who may be addressed as above.

Mr. R. N. Coughell, who owns one-half interest in this patent, will also be happy to give further information. His address is Livermore, Alameda county.

SHERMAN ISLAND CROPS.—The Sherman Island people claim that they will have the best crops of wheat and barley in the State—that the former will average 50 to 70 bushels to the acre and the latter 75 to 100. Moreover, after the grain has been taken off they will plow the land and plant root crops, thus realizing two full crops within the year—and both of the largest yield.

STAR SPANGLED BANNER MINE.—A correspondent writes us concerning the sale of the Star Spangled Banner mine, at Nevada, Cal. Thirteen twenty-fourths were sold for the sum of \$10,000.

INYO COUNTY INVENTION.—We see that the proprietors of our able exchange, the *Inyo Independent*, have invented a machine for printing addresses upon newspapers in wrappers. Our congratulations.

Artificial Limbs.

Simplicity of construction in all things is at once the greatest beauty and the best recommendation. In nothing is this more applicable than to the substitutes for lost limbs. That this is one of the great objects of the inventions here illustrated, is seen by an examination of the drawings, while it is also evident that utility, comfort and durability are likewise obtained.

The engravings represent artificial limbs which have novel features not heretofore obtained in them. India rubber is largely used in their construction, the feet and hands particularly being constructed of this substance.

Fig. 1 presents a full-length leg standing erect, to be applied in all cases where amputation occurs above the knee joint. Fig. 2 represents a leg to be applied where the leg has been amputated below the knee joint, and the stump is flexible enough and sufficiently long to enable the wearer to use it in walking. It also represents the leg

Fig. I.



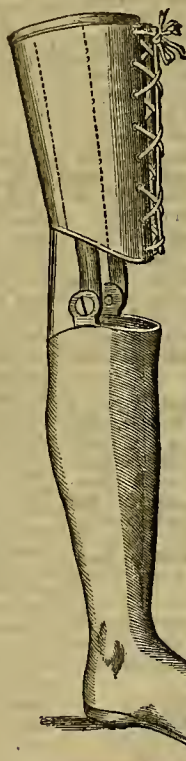
gives all the motion required in walking, and also the ease, firmness, elasticity, and reliance, absolutely necessary in a perfect artificial leg.

It would seem at first sight that no one could walk well on any artificial leg, without the moving, flapping ankle-joint, but practice proves this to be erroneous. The rubber foot also gives all the required lateral motion to the foot when stepping upon sidling or uneven ground. This leg dispenses with all machinery of whatever character, and has been in use for a number of years, giving great satisfaction.

Fig. 5 gives a rear view of the knee-joint of the long leg (Fig. 1). The T joint is fastened to the upper part or thigh piece of the leg, and the gudgeons of the T are held in adjustable, oblique boxes, which are easily set at any time by the screws passing through the caps into the main leg, so as to keep the joint to work tight and still, yet free and perfectly flexible, the small projecting bar attached to the T with the button-shaped ball operating upon the spiral spring, so as to throw the foot forward when bent in walking, and so as to hold the foot under when bent at right angles in a sitting position.

Fig. 6 shows a rubber hand, made same as the foot, of which there cannot be as much said, as of the other inventions. It corresponds, however, with the others in

Fig. II.



Reducing Chloride of Silver.

We have, in the two preceding numbers of the Press, given a full description of the Miller process of refining gold by chlorine gas. To make the description complete, we now add a paper, written by Dr. A. Leibius, on his apparatus for reducing the silver chloride, which has been found of value as denoted in the previous articles.

In the refining of gold bullion by Miller's new chlorine process, the silver contained in the alloy thus treated is eliminated from the latter in the state of argentic chloride, which, by a subsequent process, is reduced to metallic silver.

This reduction has always been effected in the usual manner, viz., by placing the slabs of fused argentic chloride between plates of wrought iron or zinc, with the addition of acidulated water. Although a perfect reduction to metallic silver has always been achieved, yet it requires a considerable amount of time and manipulation, since the thick slabs of fused argentic chloride were, after two or three days, only partially converted into metallic silver, and had to be re-arranged in order to expedite their complete reduction. Such manipulations, however, were not only found to be very objectionable on account

vertical grooves, $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep, at intervals of $1\frac{1}{4}$ in. from each other. These grooves are cut down to a length of 12 in., leaving 3 in. of each board forming the legs of the frame.

At the termination of these grooves passes horizontally a narrow slit, $\frac{1}{4}$ in. deep, and along the whole length of each board, into which a strip of metallic silver, $\frac{1}{4}$ in. wide and the thickness of a three-penny-piece, is tightly fixed, projecting on one side of the frame about 18 in. beyond each board.

The seven grooves already alluded to are for holding zinc plates, $\frac{1}{4}$ in. thick, 14 in. long, and 12 in. high, which rest on both sides on the strips of silver, which, as just described, are jammed horizontally into the sides of the two boards. A connection is thus established between the seven zinc plates and these strips of silver.

The second part of the apparatus consists of a wooden frame, cut out of a solid board 1 in. thick, and supplied with two large iron handles. This frame is the same length as the box holding the zinc plates, but 3 in. narrower. It contains on each side, parallel to the direction of the zinc plates, twelve slits $\frac{1}{4}$ in. long, which hold silver bands $\frac{1}{4}$ in. broad and the thickness of a three-penny-piece. These silver bands are passed through the slits in the board, so as to form on each side of it six loops,

Fig. III.

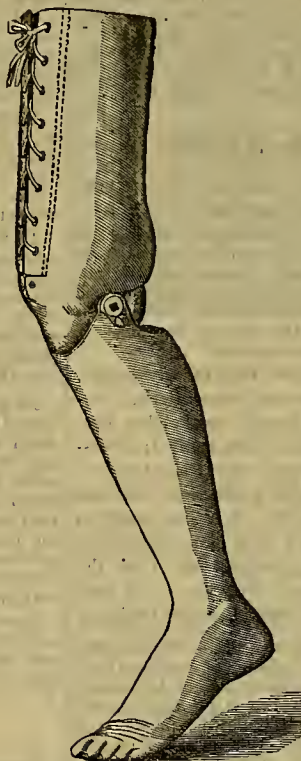


Fig. IV.



Fig. V.

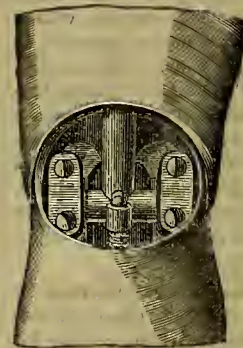
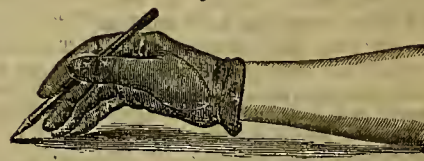


Fig. VI.



MARKS' PATENT ARTIFICIAL LIMBS, WITH INDIA RUBBER HANDS AND FEET.

with the heel compressed, and in its position after taking the step, and when firmly planted on the ground. Fig. 3 is termed a knee-bearing leg. It is to be applied where amputation takes place below the knee, and where the stump is too short or contracted at right angles, so that the knee joint cannot be used in walking. This figure represents the leg slightly bent at the knee, and bearing well upon the toe, as in the act of lifting it to take the next advance step.

Fig. 4 is a view of the india-rubber foot before being applied to the leg. This rubber foot constitutes the main feature in the legs shown in the figures. It is made mostly of india rubber of a very spongy, light and elastic character. A piece of willow wood, nearly filling the rubber heel at the top, or surface, where the leg rests, runs down about one-fourth of the distance towards the lower part of the heel; also forward and downwards to the joint at the ball of the foot, as shown by the dotted line. This piece of wood is the base upon which the foot is built, and is also the medium whereby the foot is joined firmly to the leg. The leg itself is made of light, tough willow in all cases, except the thigh piece shown in Fig. 2, and the front part of the thigh piece in Fig. 3, which are both made of leather. The entire leg and foot in all cases is covered with fine buckskin, neatly coated with a life-like, waterproof finish, making it both light and strong. It will be seen that there are no movable ankle-joints in these limbs, the necessity for these being entirely obviated by the elastic rubber foot, which

its characteristic features of simplicity and durability, and wholly dispenses with machinery, giving a softness to the feeling and an elasticity which is very desirable. It is as useful as any hand yet invented, which is not probably saying much in its favor, as no art yet shown, if it ever will, can compare with nature's handiwork.

These inventions have caused a great change for the better in the appearances, as well as usefulness to those who have lost natural limbs, and must give great relief to the maimed. In dispensing with so much machinery, they reduce the expenses of repairs very greatly, as there is no complicated gearing to get so often out of order. You see no part of the cuts representing the inside working of the leg, because there is none there to be exhibited, except the lower part of the knee spring, operating as described in Fig. 5. The limbs are, of course, hollow in all cases, to render them light, as well as adaptable to covering and supporting the stumps they enclose and sustain.

These limbs, which are protected by patents, are very popular and in great demand. Information concerning them may be obtained by addressing the manufacturer, A. A. Marks, 575 Broadway, New York City.

THE Builder announces that chignons, plaits and curls can be and have been made of spun glass, which, for cleanliness and other reasons, are preferable to human hair, hitherto used for that purpose.

of the time they required, but more so on account of the very disagreeable work which they caused to the operator. The reduced spongy silver was broken up by hand into small pieces, in order to ascertain its complete reduction, and was then boiled in acidulated water to free it from iron or zinc.

It remained, therefore, a desideratum to effect the reduction of the fused masses of argentic chloride in a manner which would, at the same, be quicker in its execution, and also obviate the just-alluded-to manipulations.

In 1863, Messrs. De la Rue and Hugo Müller, in London, constructed a galvanic battery, one pole of which consisted of fused argentic chloride the thickness of a goose quill, the other pole of cylinders of zinc. Adopting this principle, I have endeavored to construct an apparatus which should fulfil the requirements before referred to.

After operating successfully with a small model which allows the reduction of about 250 ozs. of argentic chloride in one operation, I have, with slight modifications, constructed an apparatus which will reduce from 1,400 to 1,500 ozs. of argentic chloride in twenty-four hours. The apparatus and its dimensions are as follows:

Two thick boards, 15 in. long, are joined together on both ends by three strong battens, so as to form an open box without a bottom, 13 in. long by 14 in. wide, and 15 in. high (inside measurement). The two boards forming the length of the box or frame contain seven

11½ in. in length and ¾ in. wide. The six loops on one side are exactly opposite to those on the other side of the board, at a distance of about 9 in. They are intended to hold the slabs of argentic chloride, which are 12 in. long, 10 in. high, and about ¼ in. thick, and are put through these loops lengthwise, projecting on each end about 1 in. beyond the silver bands.

The whole frame holds, as before stated, six of these slabs of argentic chloride, which are placed between the six spaces formed by the seven zinc plates, from which latter they are about ¼ in. apart on each side.

AN OLD STRIKE.—The Transcript, of Golden City, Colorado, said lately: Within a week or two, some miners in the mountains near Bear Creek, in this county, having sunk a shallow shaft five or six feet deep upon a newly discovered copper lode, found that the same place had been once before prospected and drifted. About five feet below the surface, in the detritus loose rock, charcoal and earth of the old pit, was an elk horn, partially impregnated with carbonate of copper, while the appearance of the bole plainly indicated some former mining operations.

RAILROAD EXTENSION.—The California Pacific have decided to build a road from Adalante, at the junction of the Napa Valley and Sacramento branches, to Petaluma, where it will connect with the Donahue road.

DOMESTIC ECONOMY.

PORK UNCLEAN.—The Divine declaration to the Jews:—"Swine is unclean, and of it ye shall not eat, neither you in your day, nor your posterity forever," undoubtedly had reference to the unfitness of such meat for the human stomach. *Scrofa*, from whence our word *Scrofula*, is the Latin for "an old sow;" and hence this terrible disease, even in the early Roman age, received its appropriate name from the belief that it was in some way connected with the hog. Lugol, in his essay on *scrofula* and its origin, tells us that it was originally derived from "sleeping with the hog!"

It is held by most that the command to abstain from pork was because it was in some peculiar way, at that time, a *Gentile* beast, and that the command has never been binding on Christian or Jew, since God told Peter, when he objected to eating all manner of meats (including swine), "What I have cleansed, that call thou not unclean."

But if we ignore that understanding altogether, it is certain that the cases of *trichinae*, which have recently become so common, ought to be of themselves sufficient reason to cause us to be extremely cautious how we partake of that kind of meat.

A SUBSTITUTE FOR OIL ON SALAD.—For people who dislike oil, the following preparation forms a very desirable and palatable substitute. The yolk of two hard-boiled eggs are rubbed very fine with a spoon; to these add a dessert spoonful of mixed mustard, mix the two thoroughly, then stir in a tablespoonful of melted butter, and half a teacupful of thick cream—salt. A dash of cayenne, anchovy or Worcestershire sauce will improve the mixture for some. Last of all, add, little by little, vinegar enough to make the whole a smooth creamy mass, and pour it on the lettuce just before serving.

HOW TO COOK ASPARAGUS.—Mr. Boots, of Alviso, furnishes the Santa Clara *Agriculturist* the following excellent receipt for cooking asparagus: In the vessel filled with nice unbleached "grass," he adds one-third full of water, and boils until it begins to get soft. He then turns off the water, which has absorbed all the rank green taste, and adds about half as much more water and boils until thoroughly cooked tender. He then adds cream or butter, and pepper to the taste. He has ready some dry toasted bread, a layer of which he places in the bottom of a pan, and covers with a layer of asparagus, then more toast and asparagus again until the dish is full—or completed.

CHOCOLATE—HOW TO MAKE AND USE IT. Take an ounce of chocolate for one person; scrape it and boil it about five minutes with about four tablespoonfuls of water. When smooth, add about a pint of new milk; let it boil, stirring it well. Buttered toast is the proper accompaniment of chocolate, or a light cake, made thus: Half a cupful of butter; one egg; two spoonfuls of cream of tartar, stirred with the butter and egg to a cream; one small cupful of *sour* milk added to this; three cupfuls the same size, of flour, sifted and well beaten into the liquid; and one small spoonful of soda, dissolved in hot water, and mix in the cake just before putting it in the oven, which must be hot enough to bake it in ten minutes. Bake in narrow cake-pans, filling them three inches deep.

POISONOUS CONFECTIONERY.—The official chemist of Dublin has recently made a report of 123 specimens of confectionery purchased at thirteen establishments in that city. Those manufactured at three establishments were pure, and those obtained at the other ten shops contained poisonous pigments and other impurities. Out of forty articles tinted yellow, only two were colored with saffron, all the others containing chromate of lead. Some of the specimens contained sulphide of mercury, or vermilion. There seems to be no doubt, it is stated, that these mineral colors act as slow poisons.

How I Wash my Dishes.

Of course, I make sure before breakfast or dinner that there is plenty of water in the boiler, and also in the tea-kettle. After the table is cleared, the table-cloth brushed off and neatly folded away, and the dining-room disposed of, I proceed with my dishes. First, I take my large dish-pan, put into it a piece of soap, and pour over the soap three or four dipperful of hot water from the boiler. Then I add two or three dipperful of cold rain water. Then my dish-cloth. The water should now be so cool as not to turn the hands red when put into it. Take the dish-cloth and rub from the soap the melted surface, and put the remainder away. Wash a dish at a time and pass it to another pan; a milk-pan is generally used. When all are done, or the pan is full, take the tea-kettle and pour over enough hot water to thoroughly rinse and heat them. Now take them from the water, one at a time, and place them bottom-side up upon a tray or pan to dry. If they have been properly washed, this hot rinsing water will run off or evaporate in a minute, leaving the dishes nearly dry. However, they should now be wiped with a clean dry towel, and put away. Dishes must be washed in soft water. Especially is this necessary where soap is used. And soap is really indispensable in washing dishes properly. The dishes should be scraped free from grease, crumbs, bones, etc., before commencing to wash them. A neat housekeeper will have the same dish-cloth in use until it is worn out, when it should be put in the rag-bag. Never allow the dish-cloth to be used for anything else but washing dishes.—*Mrs. W. T., in Agriculturist.*

Instruction in Cooking.

The New Bedford (Mass.), *Mercury* contains the following suggestive notice:—

"INSTRUCTION IN COOKING.—Ruth Russell is prepared to receive scholars for instruction in cooking. Special attention to be given to bread-making and pure yeast. Persons in service can receive instruction in one or all of the various branches of cooking on favorable terms."

Persons who have endured dyspepsia, with its varied agonies; long-suffering husbands, who have bought marketable provisions only to have them spoiled; diners-out, who have become martyrs in the pursuit of their noble profession; all who think that the function of eating ought to be cared for, and that good digestion should wait on appetite, will read the above advertisement with the belief that no lady could undertake a better business.

THE USE OF BUTTERMILK.—Persons who have not been in the habit of drinking buttermilk consider it disagreeable, because it is slightly acid. There is not much nourishment in buttermilk, but the presence of the lactic acid assists the digestion of any food taken with it. Buttermilk is an excellent substitute for fruit in winter, and is also very good in the spring toward keeping off that unpleasant complaint generally known as spring sickness. The Welsh peasants almost live upon oat-cake and buttermilk. Invalids suffering from indigestion will do well to drink buttermilk at meal times.

HOW TO EAT STRAWBERRIES.—This is so perfect a fruit, so exquisite in flavor, so excellent in quality that cooking, or manipulation of any kind, rather impairs than improves it. A little white sugar and cream is the only addition that can be made, and even this is a concession to our unnaturally sweetened and perverted palates, rather than to the necessities of the case. As for strawberry pie, dumplin, pudding and the whole range of dishes in which strawberries are cooked, they should be stricken out of every housekeeper's list with a single reservation in favor of "strawberry cake," in which, however, the strawberries are not cooked, and which is so great a favorite with all that we dare not say a word against it.

MILKING PAILS should always be washed with a cloth and wiped dry with the cloth wrung out of hot water. Lay them on the side to dry. If turned bottom up, the steam cannot escape, and they will get yellow and sour, which will taint the butter. If they get yellow, scour with clean water and sand.

TO KEEP BEDSTEDS FROM SQUEAKING.—Sprinkle fine sand or ashes in the joints and under the bearings of the slats.

Domestic Receipts.

PUFFS FOR TEA.—One quart of sweet milk; one quart of sifted wheat flour; four eggs well beaten; two tablespoonfuls of melted butter; two tablespoonfuls of sifted sugar; half a teaspoon of salt. Bake in brown-ware cups, from twenty-five minutes to half an hour, in a brisk oven.

CHEAP SPONGE CAKE.—Break two eggs in a teacup; beat slightly; fill up with thick, sweet cream; then add one cup of white sugar; one cup of flour; one teaspoonful of cream tartar; one-half a teaspoonful of soda. Flavor with lemon.

SUGAR JUMBLES.—Six cups of wheat flour sifted; two of sugar ditto; one of butter warmed; one of sour milk; one teaspoon of saleratus stirred into milk. Roll out with flour enough to make thin; cut a hole in the centre, and sift sugar all over the cakes. Bake on flat tins, from twenty minutes to half an hour.

GERMAN FLUMMERY.—Don't pass this by before trying it: Half a pint of milk, two ounces of Oswego flour, two ounces of sugar, boil together till moderately thickened, add a few drops of essence of vanilla or lemon, and mix with the whites of four eggs, beaten to a white snow; turn the whole into a wet jelly mold; set, to get firm, in a cool place, and serve with dip.

CHOCOLATE CREAM.—Chocolate, scraped fine, half an ounce; thick cream one pint; sugar, three ounces; heat it nearly to boiling; then remove from the fire, and mill it well. When cold, add the whites of four or five eggs; whisk rapidly, and take up the froth on a sieve; serve the cream in glasses, and pile up the froth on the top of them.

TO BLEACH BEESWAX.—The best way is to make it in thin sheets and passing a string through them, hang them in a window exposed to the light and sun; and when sufficiently whitened they can be melted and made into any form desired.

TO CLEANSE BLANKETS.—Put two large tablespoonfuls of borax and a pint bowl of soft soap into a tub of cold water. When dissolved, put in a pair of blankets and let them remain over night. Next day rub and drain them out, and rinse thoroughly in two waters and hang them to dry. Do not ring them.

RICE PUDDING.—Boil a quarter of a pound of rice in water till it is soft, then drain in a sieve, and pound in a mortar; and five well beaten yolks of eggs, a quarter of a pound of butter, the same quantity of sugar, a small nutmeg, and half the rind of a melon grated; work well together for twenty minutes, and add a pound of clean currants; mix well, and boil in a pudding cloth for an hour and a half. Serve with wine sauce.

POP OVERS.—Batter two cups of milk with two cups of flour, add the yolks of two eggs, a little salt, lastly the whites; bake in small tins.

Mechanical Hints.

SANDING PAINT WHITEWASH.—The simplest way of sanding is to dust it over the second coat of paint a sufficient quantity of which will adhere to the fresh paint to form a uniform surface. A thin third coat is sometimes applied over this to cause more firm adhesion, but it is not necessary on the rough cottage siding.

A cheap outside application is made of the best and purest lime wash, of the consistency of thick whitewash, to which, after the lime is fully dissolved and intermixed, one-twentieth of the lime is added in white vitriol (sulphate of zinc), which will cause the whole to adhere, and become more durable than lime alone. Its brilliant whiteness may be softened to a cream color, by adding a fifteenth of the lime in yellow ochre, or to a fawn color by the same quantity of a mixture of 8 quarts of number 8 of Indian red, and 1 of lampblack.

HARD CEMENT.—A cement which becomes excessively hard in time may be prepared by mixing 2 parts of silica, 1 part of silicate of alumina, and 9 or 10 parts of carbonate of lime, all in powder, and then roasting in a puddling furnace. The remaining mass is then to be ground and again roasted with 2 or three parts of carbonate of baryta. In practice, very pure sand will answer for the silica and chalk for the carbonate of lime, the remaining ingredients being supplied by mineral witherite or natural carbonate of baryta.

The following rules for the care of furniture are from an article in the *Technologist*: "Keep water away from every thing porous, alcohol from varnish, and acids from marble."

LIFE THOUGHTS.

A GOOD way to expand the chest—carry a big heart in it.

THE best way to patch up a quarrel is to split the difference.

HE who suppresses a moment's anger may prevent days of sorrow.

SAY little, and to the purpose, and you will pass for somebody.

WHOEVER is afraid of submitting any question, civil or religious, to the test of free discussion, is more in love with his own opinion than with truth.

LITTLE local noises deaden the loudest distant ones; so it is that this world shuts out the voice of Almighty God.

WE often omit the good we might do in consequence of thinking about that which is out of our power to do.

DEAL gently with those who stray. Draw back by love and persuasion. A kiss is worth a thousand kicks. A kind word is more valuable than a mine of gold.

MORALIZING.—It is one thing to moralize another thing to act. There are men who can utter the most refined and elevated sentiments and at the same time be guilty of crimes of the deepest dye. These are the most dangerous of mankind.

BELIEF.—The real test of belief is action. If a man tell us he believes a certain course to be right to adopt but in his own case acts as if he believed the contrary, we justly consider him destitute of the belief he professes.

Bright Sundays.

Let it rain every other day in the week, so that it be pleasant on Sunday. Then let the sky be blue, and the sea. Then let the birds sing, and the little children. Then let the green fields be full of blossoms, and let no ascetic say it is "wicked" to pluck them. Then let the sunlight into your houses, place flowers on your table, have an extra sweet morsel for little mouths, and a pleasant word to everybody. I had almost said do anything but make the day one of gloom. Do anything that a man or woman may do, and look the pure stars in the face, but don't groan; don't set back the chairs against the wall; don't bring out dry theological books, for young folks to read, written by library men, who never so much as peeped into the windows of a warm human heart. Don't fold your hands over your Sunday suit, and look the ceiling out of countenance. Don't bribe your children to read six chapters in the Bible; don't frown if they smile; don't let your young people long for the going down of the Sabbath sun, counting the tardy minutes, like a restless prisoner, waiting his release. Oh, anything but that; as you love truth above hypocrisy; as you love honor and obedience beyond secret license; as you dread the shadow of moral death on those bright young faces, which I am sure you love.—*Fanny Fern.*

A TENDER CONSCIENCE is like the apple of a man's eye; the least dust that gathers in it affects it. There is no surer and better way to know whether our consciences are dead and stupid than observe what impression small sins make upon us. If we are not very careful to avoid all appearance of evil, and to shun whatever looks like sin if we are not so much troubled at the vanity of our thoughts and word, at the rising up of sinful desires, as we have been formerly, we may then conclude that our hearts hardened, and our consciences stupefying for a tender conscience will no more allow of small sins than of great ones.

THE WILL OF PROVIDENCE.—There is sometimes a kind of blind submission to what is termed the will of Providence that savors strongly of indolence. The truth is, we can never know what that will is until our own duties in the matter, as far as we can discover them, are accomplished. Then, and only then, are we justified in awaiting the result in patient resignation, and then only will strength of will in endurance be as heroic as strength of will in action.

HYPOCRISY.—To be perfect in hypocrisy, it is not only necessary to assume a virtue though you have it not, but also to hide your real character. The latter is a rare accomplishment, and only those well versed in deceit of every kind are capable of it.

A CHRISTIAN should never plead spirituality for being a sloven. If he be a shoe cleaner, he should be the best in the parish.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOSEPH GILLOTT'S
STEEL PENS.

Sold by all Dealers throughout the World.

JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c., Orders left with C. W. WHITE, 47 Clay Street, J. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 2v21-3m

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

Farmers and Mechanics
BANK OF SAVINGS,

No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 1v16-3m

W. BARTLING.

HENRY KIMBALL.

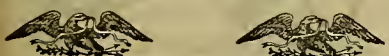
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO. 1v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Pale Rope and Whole Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.



J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 2v19

L. SCHUMANN,
PIONEER

Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufacturer on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
2v20-4v

DR. F. HILLER,
Homeopathic Physician and Surgeon.

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. m4-6m

SONORA HOTEL,

T. BRODIGAN,.....Proprietor
Best Meals and Beds in Sonora, Cal., 2v25-2m

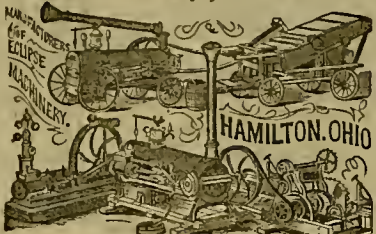
Eastern Advertisements.

OWENS, LANE, DYER & CO.

MANUFACTURERS OF

The Eclipse Saw Mills,

Combining THREE PATENTED Improvements
Essential to The Well Working of Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery,

With the celebrated
STEAM THRESHER, "California Chief."

For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier. You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

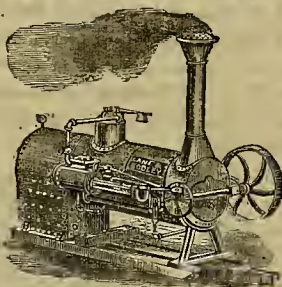
For the Variety of Places and Purposes to which it is adapted, the readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous. Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 and 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patent. Will Dealers please take notice? m4-8-3m

LANE & BODLEY'S



PORTABLE STEAM ENGINES.

From eight to twenty-five horse power, adapted to Farm, Plantation, Saw and Grist Mill use. OUR PORTABLE ENGINES excel in having capacious wrought iron Steam Dome, with Man Head giving free access to the boiler, wrought iron Smoke Head, Lift and Force Pump, and for beauty of design and efficiency.

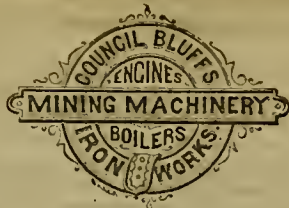
ALSO, Stationary Engines, Boilers, Saw Mills, Shafting and Wood-working Machinery. Catalogues furnished on application. Agents, J. E. Conning, New Orleans; John F. Dale, Nashville, Tenn.; G. S. Wormer & Son, Detroit; LANE & BODLEY, John & Water St. Cincinnati, O.

Improved Universal Wood Worker

FOR
Jointing, Babbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,
BORING and ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Our Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern Invention.

Send for Circular, Etc., to
McBETH, BENTLEY & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
m4-6m



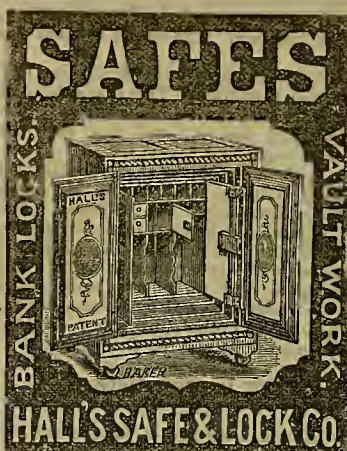
SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
coating no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late
Improvements.

Send for prices and information. Address
C. F. HENDRIE, Pres., R. J. CORY, Secy & Treas.
1v22-3m cww
Council Bluffs Iowa.
[ESTABLISHED 1820.]



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safe combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue. m4-6m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone
Complete for \$1,200.
For CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smut-tera, Corn Shellers, Flour Packers, Hominy Mills, Belting, Picks and Mill Work generally.

SEND FOR DESCRIPTIVE PAM-
PHLET. m4-3m



ISAAC STRAUB & CO.,
Cincinnati, Ohio.

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROADS, ETC.

Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap-8-ly



STOUT, MILLS & TEMPLE,

PROPRIETORS OF THE

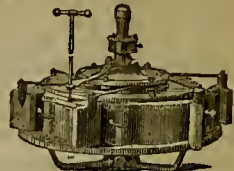
GLOBE IRON WORKS,

DAYTON, OHIO,

Hydraulic
ENGINEERS,

Patentees

AND
Manufacturers



OF THE Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

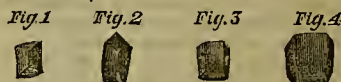
MILL GEARING AND SHAFTING

Of all Descriptions, and General Mill Furnishing.

Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular. m4-6m

DICKINSON'S
Patent Shaped Diamond Carbon-Points.

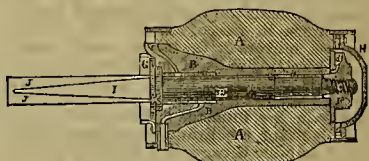
Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Glazed Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1868; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

Established 1843.

LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

CARLES R. DONNER'S PATENT

IMPROVEMENT IN



HUBS AND AXLES

This new patent is for an improved manner of uniting the steel spindle, I, with the iron portion of the axle, J, with the double collar, K, and also in the formation of a sort of hub on the holding-nut, F, which hub can be shortened so as to bring the nut closer, and thus compensate for any end wear of the box; also in the use of secondary steel boxes, a, a, within the main axle-box, B, and a series of oil-cups, C, d, arranged on the hub and an outer nut, which opens at various points within the box. A cap and protecting-ring are secured at the outer and inner ends of the hub, respectively, to protect from dirt.

An operative model and full description are necessary to show fully all the merits of the invention. The patentee can prove the value of the invention from actual working; that it is an easy mode of construction and furnishes a durable and more complete hub and axle than any other that has yet been devised. The attention of Manufacturers is solicited. All persons are cautioned not to infringe on the above patent under penalty of the law.

CARLES R. DONNER, Inventor and Patentee,
ap15-uc-cw Sonora, Cal.

AHEAD OF THE WORLD.

THE NEW TREADLE POWER,
Just Invented, and used exclusively on the HOWE
SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best,
Consequently the most Popular Machine in use. The
Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,
ap15-2m No. 113 Kearny street, San Francisco.

MULLER supplies the city with opera glasses and spectacles. He is a scientific optician and knows what kind of glasses will best suit the eyes.

Kauri Gum.

Mr. J. W. Cartier, of Auckland, New Zealand, having determined to test personally and practically the reports concerning our State by a settlement here, has visited the office of the Press for the purpose of giving and receiving information concerning the two countries.

Mr. Cartier has given us a specimen of kauri gum, an article of considerable commercial importance, and one for which the demand is increasing. It is used in the manufacture of varnishes, in stiffening ready-made clothes, in making ornaments (by melting it and running into molds), and for various other purposes.

The Kauri tree (*Dammara Australis*), a member of the Pine family, grows in New Zealand, principally to the north of Auckland, very little of the timber or gum occurring to the south of that place. The tree grows generally to a diameter of about 6 feet, but 15 feet is not uncommon; its height, from ground to lowest branches, is often 100 feet. The largest tree known is at Mercury Bay, is called the "Father of the Kauri," and measures 72 feet in circumference near the ground.

The gum is found exuding from the trees, and in the ground around the roots. The most valuable sort, however, is found in places where no trees have grown within the memory of man. This occurs in lumps, varying from one ounce to twenty pounds, even as high as 70 pounds, at a depth of from 3 inches to 2 feet below the surface, just above the clay and under the sod. It is generally obtained from the poorest lands, where a stiff white or red clay occurs, and where ferns are generally abundant, but no trees; or in swampy ground.

Two years ago, the gum was worth \$250 per ton in Auckland; now it is sold for about \$125 at that place, or \$110 where found. A large number of men are engaged in digging for it. The common method of prospecting is to prod the ground with a pointed iron wire, fastened to a stick, until a lump is hit. Ground which has been considered worked out previously, has since proved rich in many instances.

It would appear that the use of the gum was increasing, and the trade in the article bids fair to assume important dimensions.

The New Erie Sleeping Coaches.

The conveniences of modern travel—how are they multiplying! Cars heated by hot water lighted with gas, cushions of velvet, walls covered with oil paintings, carpets of the finest Brussels, curtains of tapestry, beds of curled hair, ceilings in fresco, windows of French plate glass, mirrors of the finest quality, seats of carved walnut, walls of splendidly polished hard woods, cornices fit for the finest library, hooks and handles and bars of the finest silver. Such are the appointments of the new sleeping coaches built for the Erie Railway, and which are now running between Cincinnati and New York. They call them Drawing-Room Palace Sleeping Coaches, and they are worthy of the name. They have the comfort of a bed chamber, the beauties of a parlor, and the capacity of a drawing-room. The seats are really luxurious, covered with a species of velvet called French moquette, of the most beautiful colors, and with medallion patterns in the center of each seat. The wood work is all black walnut, with panels of the same material made from the most beautiful veneers cut from the knots of this wood. The work is oiled and polished so that it is as fine as the best furniture. Five fine globes from above, surrounded by rich appointments, furnish light by night. In the main room, after the beds are all put away and hidden from view, the traveler looks upon the walls decorated with twenty oil paintings. In this coach is a parlor or family room, six by nine feet, capable of accommodating six persons. There is nothing apparently that could be added to this to make it more attractive and comfortable. There is still another stateroom in the rear that will accommodate four persons. A wash room at either end furnishes every possible convenience in this line. The bed clothing is of the best, and the amplest arrangements have been made for clean linen.

The coach is warmed by Baker's patent hot water furnace, which is so constructed that, in the event of an accident, the fire will not be communicated to the surrounding wood. Fifty persons can be accommodated in each car.

The Erie and Atlantic Sleeping Coach Company have planted thirty-eight thousand dollars in this marvel of the car kind. Whether it will blossom into handsome returns would seem to admit of no doubt, when it is remembered that the charges on these are the same that are made in the common coaches.—*Indianapolis Journal*, Dec. 7th, 1870.

Notes on Contributions to our Cabinet

We are indebted to Mr. E. Durand, who has charge of the fine mineralogical collection of Mr. F. L. A. Pioche, for the specimens noted under Nos. 522 and 523.

No. 522.—Calcite, the variety commonly called "Suisun Marble." Two fine specimens are presented us, one showing excellently well the banded structure, with layers of calcite, of different colors, on the accompanying sandstone; the other giving a wider layer showing the crystalline structure. The specimens came from Fairfield station, on the line of the California Pacific Railroad, in Solano county, where they occur in the cretaceous sandstone of the Pelevo Hills. They are formed by deposit from calcareous springs. The pieces have different colors, from a white, yellow and red to a rich, dark yellowish or reddish brown, with banded structure. It is a very ornamental stone, and beautiful polished specimens are quite common. The stone would be much sought for if large pieces could be found, which has not been the case so far. The color probably originates from organic substances, as it disappears on burning. The stone is used for lime.

No. 523.—Porcellophite, from the Dry Dock, San Francisco. This is a species of serpentine, a silicate of magnesia with water, but with less iron and lime than the ordinary serpentine.

No. 524.—A specimen of silver ore from the King William mine, Battle Mountain District, Humboldt Co., Nevada. The rock contains throughout pieces of native silver, in which it is rich. The gangue is quartz ore with decomposed feldspar. The ledge is a new discovery, now being worked, which is owned by Messrs. Drake, Robb, Kelly and others, to whom, we presume, we are indebted for the specimen.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

CAL. ICE MANUFACTURING Co.—April 11. Capital Stock, \$250,000 in 500 shares. Trustees: J. A. Robertson, A. Austin, D. D. Colton, J. T. Dean, H. P. Wakelee, T. J. L. Smiley and F. McLennan.

CALEDONIA S. M. Co. Gold Hill, Nevada.—May 2. Capital Stock, \$2,000,000 in 20,000 shares. Trustees: W. B. Browne, A. Doble, T. Nelson, W. F. Halsey and M. White.

MOUNT JEFFERSON M. AND M. Co. Tuolumne county.—May 4. Capital Stock, \$2,500,000 in 25,000 shares. Trustees: D. D. Shattuck, S. B. Boswell, L. J. Lewis, E. W. Woolsey and A. G. Stiles.

NEW YORK HILL G. M. Co. Nevada county.—May 4. Capital Stock, \$1,000,000 in 10,000 shares. Trustees: A. Delano, D. Hoyt, C. W. Kellogg, A. H. Lissak Jr., and F. A. Hassey.

ARIZONA M. AND WATER Co.—May 6. Capital Stock, \$2,000,000 in 20,000 shares. Trustees: I. G. Messie, M. J. McDonald, J. W. Coleman, L. Vesaria and M. L. McDonald.

S. F. WATER Co.—May 9. Capital Stock, \$1,000,000 in 10,000 shares. Trustees: W. S. Chapman, T. W. Moore, W. A. Bolinger, M. D. Townsend and R. W. Stretch.

SAN JOAQUIN VALLEY CANAL AND IRRIGATING Co.—May 13. Capital Stock, \$5,000,000 in 50,000 shares. Trustees: J. D. Walker, T. Parrott, A. Grant, F. D. Atherton, T. H. Selby, M. S. Latham, W. S. Chapman, I. Friedlander and A. Godeffroy.

The following have filed certificates with the County Clerk, Sacramento.

CAMP FLOYD S. M. Co.—May 1.

SAN BENITO QUICKSILVER M. Co. Monterey county.—May 1. Capital Stock, \$120,000. Trustees: M. Cody, T. McMahon, J. J. Doyle, A. Massey and E. C. Tully.

Meetings and Elections, Etc.

PIOCHE S. M. Co.—May 1. Trustees: J. D. Fry (President), A. Hayward, C. N. Felton, A. H. Rutherford and G. S. Dodge. Secretary, C. E. Eliott.

ONEIDA M. Co.—May 1. Trustees: Steinhart, J. B. Fargo, S. Heydenfeldt, J. Morgan and A. H. Rose.

ORIG. HIDDEN TREASURE M. Co.—May 2. Trustees: A. Wheeler, M. J. McDonald, W. B. Bourne, J. W. Coleman, H. F. Cutler, O. H. Bogart and H. Williams.

PLANET COPPER M. Co.—Trustees: L. L. Bullock, J. Wieland and J. Schwertzer. Secretary, T. Burdon.

CANYON CHIEF M. Co.—Trustees: J. Nightingale (President), E. L. Smith, R. G. Brown, G. O. Ecker and W. E. Dean. Secretary, W. H. Watson.

NEVADA LAND AND M. Co.—Trustees: R. P. Johnson (President), W. Weeks, J. Klopstein, H. C. Kibbe and W. H. Watson (Secretary and Treasurer).

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109, Post st.]
SAN FRANCISCO, Thursday, May 18.

Sole Leather.—The demand is still equal to the supply, and prices firm.	
City Tanned Leather, 3 b.	26 30
Santa Cruz Leather, 3 b.	26 00
Country Leather, 3 b.	25 25
French Calf and Kip Skins still continue firm, with a slight advance in Jodot Calf and the best brands of Kips.	
Doublet Skins rule the same.	
Light, 11 to 15 Kil, per doz.	\$82 00 @ 96 00
Corneillon, 16 Kil, per doz.	72 00 @
Osman Calf, 15 Kil, per doz.	74 00 @
Merrier Calf, 15 Kil, per doz.	65 00 @
Jodot, second choice, 11 to 15 Kil, 3 doz.	68 00 @ 88 00
Common French Calf Skins, 3 doz.	35 00 @ 75 00
French Kips, 3 doz.	1 00 @ 15 00
California Kip, 3 doz.	60 00 @ 50 00
Eastern Wheel Stuffed Calf, 3 b.	80 00 @ 125 00
Eastern Brind Stuffed Calf, 3 b.	1 10 @ 125 00
Eastern Calf for Banks, 3 b.	1 15 @ 125 00
Sheep Roams for Topping, all colors, 3 doz.	8 50 @ 13 00
Sheep Roams for Linings, 3 doz.	5 50 @ 10 50
California Russett Sheep Linings	1 75 @ 5 50
Best Jodot Calf Boots, 3 doz.	25 00 @
Good French Calf Boot Legs, 3 pair.	4 50 @ 5 00
French Calf Boot Legs, 3 pair.	4 00 @
Harness Leather, 3 b.	30 00 @ 37 50
Pair Bridle Leather, 3 b.	48 00 @ 72 00
Skirting Leather, 3 b.	3 40 @ 37 50
Wool Leather, 3 doz.	30 00 @ 50 00
Buff Leather, 3 foot	22 00 @ 25 00

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st 70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4/72, that he has paid to the 4th of January, 1872; 4/10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

W. H. MURRAY—Eastern States.
M. B. STARR—Pacific Coast.
THOS. POYZER—California.
Wm. J. CLARK—California.
L. P. McCAFFRY—California.
E. P. HICKS—California.
A. C. KNOX, City Soliciting and Collecting Agent.

London Agency.—BATES, HENDY & Co., 4 Old Jewry, E. C., & Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in this week as possible.

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the Press who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-bp-tf

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

PSYCHOMANCY.—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Fascination or Soul Charm. 400 pages. Full instructions to use the power over men or animals at will, how to mesmerize, become Trance or Writing Mediums, Divination, Spiritualism, Alchemy, Philosophy, Omens, and Hears, Bright Young's Harem, Guide to Marriage, &c., 200,000 sold. Sent by mail in cloth for \$1.25 paper covers, \$1.00. The Philadelphia Star speaking of the book says its author is HERBERT HAMILTON, B. A., the celebrated Psychological lecturer, and publisher, T. W. EVANS, one of the oldest Publishers and Publishers in the city, the mention of whose name is a sufficient guarantee of the merits of the work. Mr. EVANS has spent \$30,000 already in the cause of getting out this extraordinary book. Skeptics in Psychology read and be convinced of this wonderful occult power.

NOTICE.—Any person willing to act as Agent will receive a sample copy FREE. As no capital is required, all desirous of genteel employment should send for the work, enclosing 10 cents for postage, to T. W. EVANS, 41 S. Eighth street, Philadelphia, Pa. ma4-lam3t

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to the finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the 'Maravilla' Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of which also may be had Taylor Brothers' Genuine Homoeopathic Cocoa and Soluble Chocolate Steam Mill—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-ly

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14720

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

E. J. FRASER, M. D.,

SURGEON,

No. 108 Stockton street, S. F., Cal.

7-30 GOLD LOAN

OF THE

Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July last) is being pushed forward with great energy from both extremes of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 26 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September next this will be increased to at least 580 miles.

A GOOD INVESTMENT. We are now selling, and unhesitatingly recommending, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 percent. currency), and are secured by first and only mortgages on the ENTIRE ROAD AND ITS EQUIPMENTS, and also on

23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to their character as a first-class, prompt-paying Railroad and security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.

SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed. The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their ample security and high rate of interest there is no investment accessible to this people, which is more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 6 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.

OTHER SECURITIES—AGENCIES. All marketable Stocks and Bonds will be received at their highest current price in exchange for Northern Pacific Seven-Thirties. EXPRESS CHARGES on Money or Bonds received, and on Seven-Thirties sent in return, will be paid by the Financial Agents. AGENCIES for the sale of this loan are established in nearly every city and important town throughout the United States and Canada. Full information, maps, pamphlets, etc., can be obtained on application at any agency, or from the undersigned.

For Sale by

JAY COOKE & CO.,

Philadelphia, New York and Washington.
Financial Agents Northern Pacific Railroad Co.
By Banks and Bankers generally throughout the country. mar25-13t-cow

Phelps' Patent Animal Trap.



FOR GOPHERS, SQUIRRELS, RATS, CATYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer,

D. V. PHELPS,

San Leandro, Alameda County, Ca



Travelers are always liable to sudden attacks of Dysentery and Cholera Morbus, and these occurring when absent from home, are very unpleasant. The PAIN KILLER may always be relied upon in such cases. As soon as you feel the symptoms, take one teaspoonful in a glass of new milk and molasses, and a glass of hot water, stir well together and drink hot. Repeat the dose every hour until relieved. If the pain be severe, bathe the bowels and back with the medicinal oil.

In cases of Asthma and Phthisis, take a teaspoonful in a glass of hot water sweetened well with molasses; also bathe the throat and stomach faithfully with the medicinal clear.

Dr. Sweet says it takes out the soreness in cases of bone-setting faster than anything he ever applied.

Fishermen, so often exposed to death by having their skin pierced with hooks, and fins of fish, can be relieved by bathing with the Pain Killer as soon as the accident occurs; in this way the anguish is soon abated; bath as often as once in five minutes, say three or four times, and you will seldom have any trouble.

The bites and scratches of dogs and cats are soon cured by bathing with the Pain Killer clear. may6-1m

YOUNG LADIES' SEMINARY, BENICIA.

The Twentieth Annual Session of this well known institution will commence on the

28th day of July Next.

Previous to that date there will be a complete renovation of the establishment. A fine School Room and many other improvements will be added, and new furniture, carpets, bedding and apparatus supplied.

The course of study and mode of instruction will be such as the best modern culture demands; and the every genuine advantage of school and home, the institution will prove its claim to a place in the first rank.

For particulars address

REV. C. H. POPE,

1971-1mh

Benicia, Cal.

FOREIGN PATENTS

For Pacific States Inventors

ARE SECURED IN MUCH LESS TIME.

—BY—

DEWEY & CO.,

Proprietors of the

SCIENTIFIC PRESS,

Than through any other Agency.

ESTABLISHED IN 1860,

This Firm can be Relied Upon

—AS—

HONEST, COMPETENT, PERMANENT.

All of which points are imperatively requisite in Attorneys, for the Interests of their Applicants for Patents in distant lands.

Our Associates and Correspondents are the Best Practitioners in every country where Patents are granted.

For Foreign Patents no model is required except in Canada. The Specifications and Drawings of the American Patent, if complete and perfect, will suffice for us to prepare the case. In Great Britain and other countries we apply for patents in the inventors' own names, thus avoiding their being published to the world in the name of a foreign agent, as is usual through other and less painstaking agencies.

Frequently several inventions, covered by different patents in the United States, of the same subject, can be skillfully combined in one patent in foreign countries, when well understood by intelligent attorneys.

As the privileges of our inventors are cut off in some countries, and curtailed in others, if not applied for soon after the issue of the U. S. patent, we advise inventors whose patents will be valuable in various populous civilized countries, to lose no time in applying for patents whenever they intend to obtain them for themselves or the benefit of others—with their own means or through the resources of those who are permitted to share the benefits. It must be remembered that the English (and some other important nations) invite the early introduction of inventions into their realms, by offering patents to the first introducer (which means the first applicant), without regard to the rights of the actual inventor, who has no after recourse.

For important inventions it is best to apply for foreign patents at the time of application for or before the issue of the U. S. patent.

Term of Patents in Foreign Countries.

Countries.	Period of years granted, etc.
AUSTRALIAN COLONIES:	
VICTORIA.....	14 yrs. in successive periods, 3, 4 and 7 years.
TASMANIA.....	14 yrs. in successive periods, 3, 4 and 7 years.
NEW SOUTH WALES.....	7 to 14 years.
QUEENSLAND.....	7 to 14 years.
NEW ZEALAND.....	Full term, 14 years.
AUSTRIA.....	10 years, by annuities.
ARGENTINE REPUBLIC.....	25 years or more, determined by government.
BAVARIA.....	10 years, by annuities.
BELOGIUM.....	10 years, by annuities.
BRAZIL.....	5 to 20 years.
BRITISH COLUMBIA.....	Full term, 14 years.
CHILE.....	14 years.
CUBA.....	25 years or more, determined by government.
DENMARK.....	5, 10 and 15 years.
ENGLAND.....	5 to 20 years, at the option of government.
FRANCE.....	14 years, in successive periods, 3, 4 and 7 years.
ITALY.....	15 years, by annuities.
INDIA.....	14 years, 5 copies specification required.
MEXICO.....	Full term, 10 years.
NORWAY.....	5 to 10 years, at the option of government.
PONTUOAL.....	Importation 5, Invention 10 years.
PRUSSIA.....	Usually 5 years.
PERU.....	25 years or more, determined by government.
RUSSIA.....	5 to 15 years.
ROMAN STATES.....	Importation 1 to 6 years, Invention 3, 5, 10 years.
SAXONY.....	5 years, with prolongation to 10.
SPAIN.....	Importation 5 years, Invention 5, 10 and 15 years.
SWEDEN.....	3 to 5 years, at the option of government.
WURTEMBERG.....	5 to 10 years.

THE PRICES for foreign patents range in some countries according to the term for which they are taken. We will furnish the prices for any particular countries on application to us.

We have the Foreign Patent Laws, Foreign Patent Reports, and other valuable and assisting documents, for ready reference in our Scientific Press Patent Agency Library—the most complete Patent Library on this side of the Continent.

Any further information regarding the time within which patents must be worked in any foreign country, time of payment and amount of annuities for patents in any of the above countries, will be cheerfully given on application.

Full particulars regarding any countries not named above, will also be given when desired.

DEWEY & CO.,
Patent Agents.

Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, San Francisco.

STOP PAYING RENT.

San Francisco Co-operative Land and

BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$1.00

PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 308 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. E. CONGDON, Secretary.

ap1-3m.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

ap8-3m

Pacific
Insurance Company.
No. 422 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

O. J. KINO, B. KIMBALL, P. H. OORE.
P. D. CODE & CO.,
MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16]

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

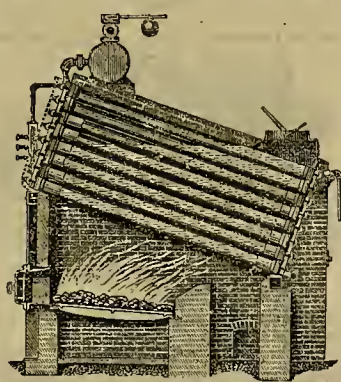
San Francisco,

WILL OPEN

Tuesday, August 10, 1871.

And continue for four weeks, in the Pavillion
of the Society, on Union Square, in
this city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of
the Mechanics' Institute any day, between the hours of
1 and 9 P. M., or by letter to the Corresponding Secretary,
H. C. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who
intend to exhibit from this city. tel8-16p-1f



OVER 300 IN USE.
BEST IN THE MARKET.
Engines, Pumps, Etc., Manufactured and
on Hand.

For pamphlets and testimonials address
ROOT STEAM ENGINE CO.,
Twenty-eighth Street, corner Second Avenue,
20v22-cow-26t New York.

GILES H. GRAY, JAMES M. HAYDEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

G. W. OSBORN, } Agents.
C. F. BROWN, }

THE OFFICE OF

"THE BUREAU OF MINES"

AND

Mining Statistics of the Pacific Coast"

IS LOCATED FOR THE PRESENT AT

No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the Registry of Mines.

Parties desiring to communicate by letter, will obtain

Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,

Secretary of "Mining Bureau Pacific Coast,"

San Francisco, Cal.

Care of Lock Box 406.

22v-18-4f

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanics' Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 6th, addressed to Mechanics' Institute, care J. H. Gilmore, San Francisco.

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, THAT BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

MANUFACTURERS—1, WHARF ROAD, CITY ROAD,

LONDON, AND BORDEAUX, FRANCE.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Hanscom Copper Mining Company.—Location, Low Divide District, Dol Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23rd day of April, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable on and after the 6th day of May, at this Secretary's office, 21 and 23 First Street, Office Golden State Iron Works, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 12th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

JAMES S. BIDDOLPH, Secretary.

Office Golden State Iron Works No. 21 and 23 First St.

San Francisco, 18v22

Salamander Gold and Silver Mining Company, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 4th day of May, 1871, an assessment (No. 3) of thirty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, at the office, No. 210 Post street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 19th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco. 18v22-4v

Sierra Iron Company.—Location of Works, Sierra and Plumas Counties, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 17th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold or silver coin, to the Secretary, at the office of the Company, No. 428 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 20th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

CALEB T. FAY, Secretary.

Office, Room No. 7, 428 California street, San Francisco. 20v-22-4w

Stockholders' Meeting—Office of the

Rogers Silver Mining Company, San Francisco, May 10th, 1871. In accordance with a resolution adopted at a meeting of the Trustees of the Rogers Silver Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company No. 6 Montgomery street, San Francisco, California, on Tuesday, the 20th day of June, A. D., 1871, at 11 o'clock, A. M., to take into consideration, and decide upon the proposition to increase the capital stock of said company from nine hundred thousand dollars, divided into three thousand shares of three hundred dollars each, the present capital of the company, to fifteen hundred thousand dollars, to be divided into fifteen thousand shares of one hundred dollars each.

GEO. S. MANN, JOHN BARTON, G. D. WYMAN, R. PERRY, Trustees.

18v22-4w

Silver Sprout Mining Company—Location of Works and Mines, Kearsarge District, Inyo County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fifteenth day of March, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Gillig, John.....	unissued	640	\$400 00
Illerast, George.....	unissued	200	1250 00
Mott, E. B. Jr.....	29	200	1250 00
Tuttle, B. F.....	31	60	375 00

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of March 1871, so many shares of each parcel of said Stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., 327 Montgomery st., San Francisco, Cal., on Monday the 6th day of June, 1871, at the hour of 11 o'clock A. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

Stock in this Company will be received in payment of the above assessment, at the rate of \$12.50 per share, U. S. Gold Coin. T. B. WINGARD, Secretary.

Office, No. 206 Front street, San Francisco. 18v22-2w

Kincaid Flat Mining Company—Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 28th day of April, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, No. 231 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 19th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 1st day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

N. C. FASSETT, Secretary pro tem.

Office, 230 Clay street, San Francisco. 18v22-1w

Latawana Mining Company, near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of May, 1871, an assessment of Twenty Cents (20) per share was levied upon the capital stock of said Company, payable immediately, in U. S. gold and silver coin, to the Secretary, 614 Merchant street, Room 26, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 23rd day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 11th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, San Francisco, California. 18v22-1w

Mauntau Silver Mining Company—White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1871, an assessment of five cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 31 New Merchants' Exchange (third floor), in San Francisco. Any stock upon which said assessment shall remain unpaid on the 19th day of June, 1871, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on the 19th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

M. J. BUFFINGTON, Secretary.

Room 31, New Merchants' Exchange, San Francisco.

Mina Rica Mining Company—Location of works, Auburn Mining District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of April, 1871, an assessment of Twenty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the Company's office, Room 2, No. 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of May, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

GEO. R. SPINNEY, Secretary.

Office, Room No. 2, third floor, No. 418 California street, San Francisco, Cal. 18v22-1w5t

Nevada Land and Mining Company.—Location of Works, Steptoe, Johnson and Latham, Antelope and Clifton District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Thursday, June 8th, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, July 3d, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

WM. H. WATSON, Secretary.

Office: Room 5, No. 302 Montgomery Street, San Francisco, Cal.

Taylor Mill and Mining Company.—Location of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of April, A. D., 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of May, A. D., 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 12th day of June, A. D., 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

SAMUEL S. MURPHY, Secretary.

Office, 520 Montgomery street, over Sather & Co.'s Bank San Francisco, Cal. ap22-5w

Yosemite Consolidated Mining Company—Location of works, Santa Fe District, Lander County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of April, 1871, an assessment (No. 3) of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the twenty-second day of May, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the nineteenth day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

DAVID WILDER, Secretary.

Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. ap15-1u

Yosemite Consolidated Mining Company, Santa Fe District, Lander County, Nevada.

Notice is hereby given that the Annual Meeting of the stockholders in the above-named company will be held at their office, No. 28 Merchants' Exchange, California street, San Francisco, California, on Monday, the 15th day of June, 1871, at 12 o'clock M., for the election of Trustees and the transaction of other business. By order of the President.

20v22-3w DAVID WILDER, Seco.

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S OLEO-
BRATED PATENT GOVERNOR.
18v20-3m

GODDARD & CO.

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-47

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

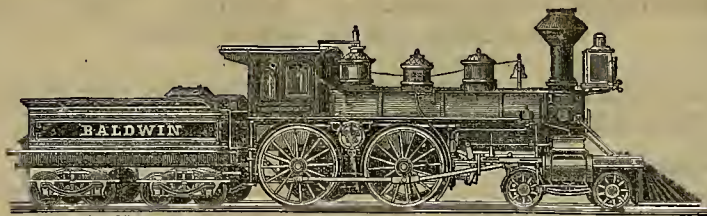
STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.Front Street, between N and O streets,
[4v1] SACRAMENTO CITYTHE
ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in
large quantities,Are now Prepared to Take Orders
AND MAKE CONTRACTS.This Company will manufacture Pipe and guarantee
it to stand any pressure required; this lighter than iron
pipe and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the office of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-tf

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 4v19-g7

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WIL. P. HENSZEY,
GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH.
27 WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal. apl-cow26t

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

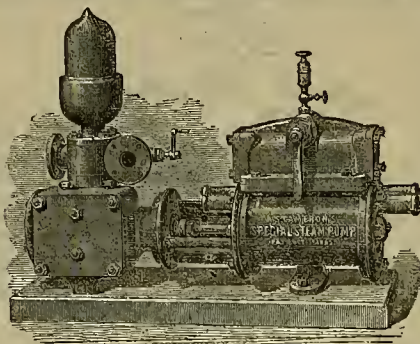
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE



GOVERNOR.

These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
PUNCHES. 3v21

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Miann,
SAN FRANCISCO.ALL KINDS OF Brass, Composition Zinc, and Babbitt Meta-
Castings, Brass Ship Work of all kinds, Spikes, Sheath-
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells, and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. J. H. WEED, V. KINGWELL.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY,

For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, 318 CALIFORNIA STREET, San Francisco.
25v20-3mPACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES 1

Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

The highest price paid for Scrap Iron 9v143m

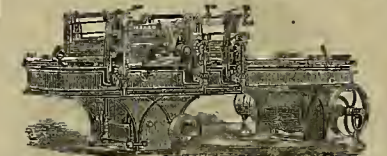
NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14g

WOODWORTH PLANERS

Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents, BERRY & PLACE,
112 and 114 California street, San Francisco.

The Stetefeldt Furnace.

For information of any description respecting [this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4 v21-1y San Francisco.McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco
2v21-tfTHOMPSON BROTHERS,
EUREKA FOUNDRY,and 131 Beale street, between Mission and Howard
San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16gr

Machinery.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee
that the purchasers shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.
To put one of the Wilson Mills over the mountains,
from \$10,000 to \$18,000 is saved in First Cost.The Wilson Mill will save in working expenses and
repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

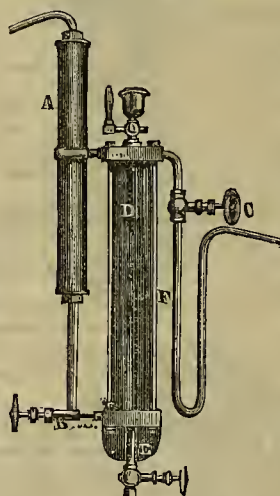
DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its
merits. One can always be seen at the Pacific Iron
Works.Ten of these Mills are now in operation.
For further particulars address

FURMAN R. WILSON,

San Francisco.

GARRATT'S CONDENSING LUBRICATOR,

Or "TALLOW
CUP." This is
a California
Invention,
and the
BEST and
Most Eco-
nomical
Lubricator
in use. It
keeps cool,
and its op-
erations are
very readily
observed.
Send for
Circular to
W. T. GAR-
RATT, Cor.
Mission &
Fremont
streets, San
Francisco.DESCRIPTION.—D, is a glass chamber which contains
the lubricant. C is a valve, connecting with cup which in-
troduces the lubricant into chamber D. F, is the discharge
pipe for the lubricant, provided with an inverted syphon to
prevent steam from coming back from the steam chest or
steam cylinder into the instrument. E, a waste pipe and
valve for drawing waste water from the oil chamber before
re-charging the same. B, a valve and pipe to introduce
water under the lubricant for the purpose of expelling the
same; this pipe is connected to the boiler or steam pipe
therefrom. A, is a steam condensing pipe or vessel, to pro-
vide a full supply of clean and pure water for the election
of the lubricant from the oil chamber; the rapidity of action
being regulated by the valves B and C. 1618-tf

STURTEVANTS

PRESSURE

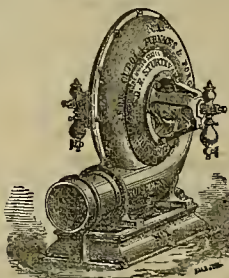
BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the differ-
ent sizes always in
store. 4v22For
Steam Pipes
& Boilers Hair FeltingSaves 26 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

STEAM JET PUMP.

Blaklee & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke or start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT, Southeast cor. Tenth & K Streets, Sacramento City Cal. AGENTS—CHAS. F. BROCK, 117 California St., San Francisco; KEPP & BADOIN, Stockton. 57 Cau. be seen at McAFEE, SPIES & Co's. Boiler Works, S. F. 21v21-tf

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolted Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Pulses, Drugs, &c. Mills specially adapted for grinding Quartz. 2v21-lyna 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and sellers for themselves, at the office, 220 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, between New Montgomery and Third Streets, San Francisco.

E. G. DEWNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. Best means yet discovered for saving fine particles of Gold. 20v21-tf

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,**MINING,****And BLASTING****POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 18v20-3m JOHN F. LOHSE, Secretary.

THE AMERICAN SUBMERGED PUMP.

Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.**PRICE LIST.**

No.	0.—Iron, \$15; Iron Galvanized, \$17; Capacity, 500.....	Gallons per Hour.
" 1.—	" 25; " 30; " 1,000 to 1,200.....	" " "
" 2.—	" 40; " 45; " 2,000 to 2,500.....	" " "
" 3.—	" 70; " 75; " 4,000.....	" " "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY

PACIFIC PUMP MANUFACTURING COMPANY,

318 Pine street, San Francisco.

Travelers' Guide.**CENTRAL PACIFIC RAILROAD.**

Pass'ger	Express	MAY 1,	Express	Pass'ger
Sunday	Train	1871.	Train	Sundays
except'd	Daily.		Daily.	excepted
4.00 P.M.	8.00 A.M.	San Francisco.....	5.45 P.M.	12.30 P.M.
4.42 P.M.	8.40 A.M.	Oakland.....	5.12 P.M.	11.58 P.M.
	1.30 A.M.	San Jose.....	5.40 P.M.	
7.58 P.M.	12.15 P.M.	Stockton.....	1.43 P.M.	8.35 P.M.
9.35 P.M.	2.10 P.M.	Sacramento.....	11.15 A.M.	7.00 A.M.
	4.10 P.M.	Marysville.....	9.10 A.M.	
	9.00 P.M.	Seaside.....	4.50 A.M.	
	2.00 P.M.	Sacramento.....	11.45 A.M.	
	5.25 P.M.	Celina.....	8.45 A.M.	
	1.15 A.M.	Reno.....	1.00 A.M.	
	9.10 A.M.	Winnemucca.....	4.05 A.M.	
	12.00 M.	Battle Mountain.....	1.25 P.M.	
	4.40 P.M.	Elko.....	8.45 A.M.	
	6.10 P.M.	Ogden.....	5.15 P.M.	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *5.50, 8.10, 9.10, 10.20 and 11.10 a. m. 12.00, 1.50, 3.00, 4.00, 5.15, 6.30, 8.30 and 11.30 p. m. (10.20, 11.10 and 3.00 to Oakland only).
LEAVE BROOKLYN, *5.15, *8.30, 7.40, 8.50 and 10.00 a. m., 1.30, 2.40, 4.55, 6.10, and 10.10 p. m.
LEAVE OAKLAND, *5.25, *8.40, 7.50, 9.00, 10.10, 11.00 and 11.50 a. m., 1.40, 2.50, 3.50, 5.05, 6.20 and 10.20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7.20, 8.00, and 11.15 a. m., 1.30, 4.00, 5.30 and 7.00 p. m. (7.20, 11.15 and 5.30 to Fruit Vale only).
LEAVE HAYWARDS, *4.30, 7.00 and 10.45 a. m., and 3.30 p. m.
LEAVE FRUIT VALE, *5.25, 7.55, 9.00 and 11.20 a. m., 1.30, 4.05 and 5.30 p. m.

*Trains do not run Sundays.

T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York. Three daily lines of

Pullman's Palaces day and Sleeping Cars, from Chicago

to Pittsburgh,

Harrisburg,

Philadelphia

and New York,

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington City.

Express trains on this line are equipped with WEST-INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

*All New England Passengers holding tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in

San Francisco, at 422 California street, 208 Montgomery

st., 308 Montgomery st., and at Ticket office of Central

Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne

Denver and Omaha. Be sure your tickets read via

Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago

route. T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, 4v22-ly San Francisco, Cal.

Yosemite

— AND —

BIG TREES.**THROUGH TICKETS**

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

O. P. R. R. Office, 422 California Street.

C. P. R. R. Office, Oakland Wharf.

O. & N. W. Ry. Office, 445 California Street.

C. B. & M. R. R. Office, 214 Montgomery Street.

C. R. I. & P. R. R. Office, 208 Montgomery Street.

O. K. St. J. & O. B. R. R. Office, 306 Montgomery Street.

The Patent Wood Horse Collar

AND HAME COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never SWEATS or GALLS the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sores of Shoulders

In Three Weeks, Working Every Day.

For further particulars as to price of Collars, etc., apply to or address WILDMAN & MARBLE,

No. 30 California Street, San Francisco,

Proprietors for the Pacific Coast.

Agents Wanted. 19v22-2m

Manganese ! Manganese !

We have on hand the Best and Purest article of Powdered Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,**CYANIDE OF POTASS,**

And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco,

22v-17-3m

Readers addressing parties on business, from intelligence given in this journal, will confer a favor by stating the source of their information.

Metallurgy and Ores.**CALIFORNIA ASSAY OFFICE**

(Successors to Geo. E. Rogers)

No. 612 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE.....Manager.

J. A. MAHS.....Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical**CHEMIST,**

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,**COMMISSION MERCHANTS,****ADVANCES MADE****On all kinds of Ores, and particular attention****PAID TO****CONSIGNMENTS OF GOODS,**

4v16-3m

F. MORRIS,**Practical Assayer and Metallurgist,**

Nos. 30 and 36 Fremont street,

SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 19v22-3m

Richardson & Co., Copper Ore Wharves,**SWANSEA.**

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lys

LOUIS FALKENAU,**STATE ASSAYER,****Analytical and Consulting Chemist,**

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.**Ores Crushed, Sampled and Assayed.**

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

PLATINUM**Vessels, Apparatus, Sheet, Wire, Etc., Etc.**

For all Laboratory and Manufacturing Purposes

H. M. RAYNOB,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 22v16t

Oriental Powder Co.,

MANUFACTURERS OF

Blasting,**Mining, and****Sporting Powder,**

Of superior strength and cleanliness.

Patent Compound for Blasting
and Mining.

Electric Batteries, Fuses, and
Leading Wire for Blasting.

Address

A. W. TAYLOR, Agent,

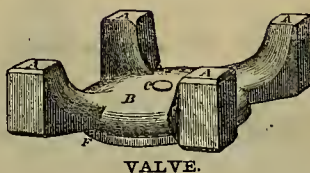
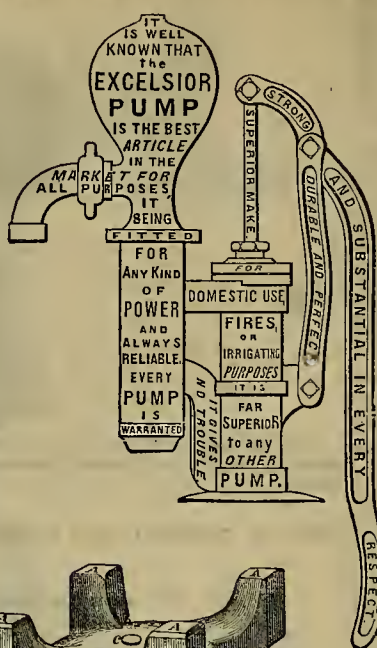
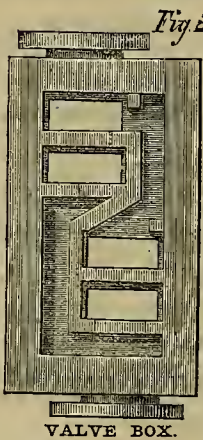
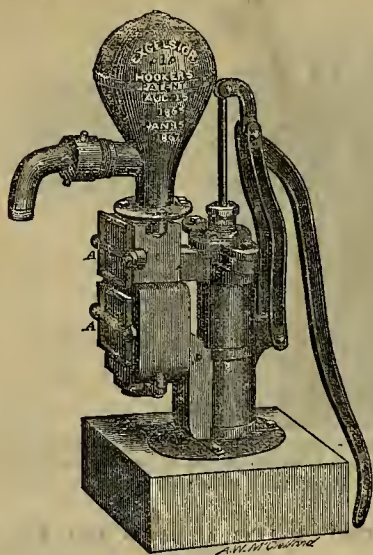
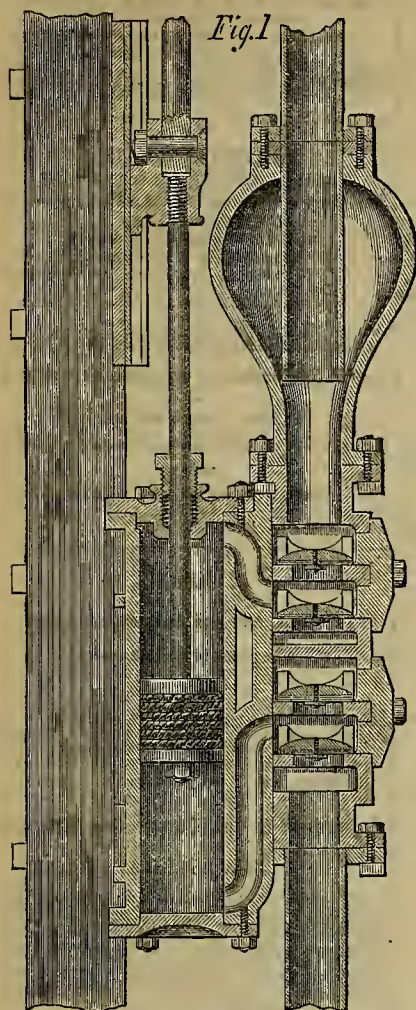
Corinne, Utah.

Send for Circulars. 18v21-1amt21

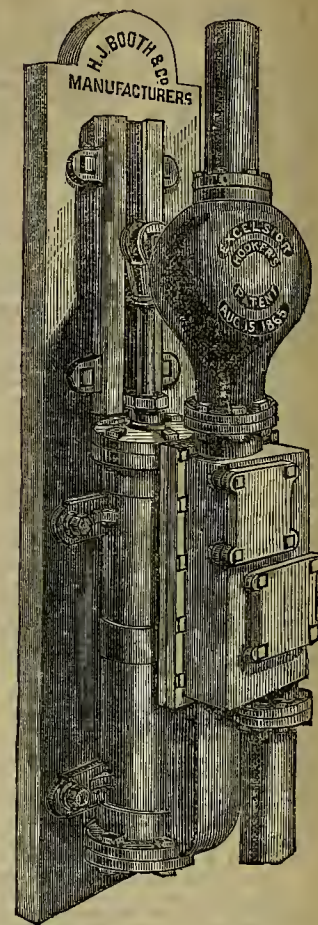
PATENT BROKERS.—Inventors having valuable patents and needing reliable assistance in selling them should consult WEISTER & Co., No. 17, New Montgomery street, under the Grand Hotel, San Francisco.

EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.

HOOKER'S PATENT, August 13, 1865, and January 15, 1867.



VALVE.



We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pumps of equal caliber. It has Poppet Valves, which can not be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump, for its SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. See circular for particulars.

General Agents.—MESSRS. DRITMAN, HOLBROOK & CO., 111 and 113 California street, and 17 and 19 Davis street, are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. H. J. BOOTH & CO., Union Iron Works, First Street, corner of Mission, San Francisco, who manufacture and have the sale of the Excelsior Pump.

V. CUSHING, Proprietor, San Francisco.

We have BRASS-LINED, BRASS PISTON and BRASS VALVE PUMPS, at greatly reduced prices. Also STEAM PUMPS.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.

SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER.

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

OCCIDENTAL

Insurance Company
OF SAN FRANCISCO.

ash Capital, - - - - - \$300,000

GOLD COIN

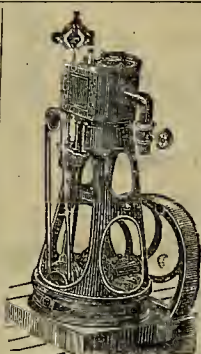
OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

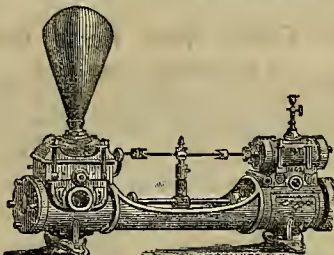
B. ROTHSCHILD, Secretary, 20v17

RIDER'S
Automatic Cut-off
Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HADREN & RILEY, Corner Albany and Washington Sts., New York. 26v20-ly16p

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qsl6p

W. T. GARRATT & CO.
CITY

Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,
Church and Steamboat Bells,
TAVERN and HAND BELLS, GONGS,
FIRE ENGINES, FORCE and LIFT PUMPS.

Steam, Lignor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES and NOZZLES for mining purposes, Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garrett's Patent Improved Journal Metal."

Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER.

Somewhat slower in its Explosion, which we recommend for

BLANK BLASTING, COAL MINES,

AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.

It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

Price. 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

20v22-3m16p

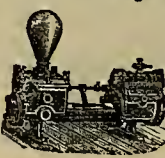
BANDMANN, NELSEN & CO.,
General Agents, No. 210 Front Street.

BAIRD'S
BOOKS
FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.
HENRY CAREY BAIRD,
Industrial Publisher, 408 Walnut St., Philadelphia.

MAGAZINES.	P. An.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansome and
New York Ledger.....		Washington streets,
Blackwood.....		SUPPLIES ALL
House at Home.....	3 00	Eastern Periodicals,
Good Words.....		BY THE
Peterson's.....	5 00	Year, Month, or Number.
Arthur.....		
Lady's Friend.....	6 00	
Harper's Weekly.....	15 00	
Chimney Corner.....		
Literary Album.....		
London Society.....		
All the Year Round.....		
London Ill. News.....		

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tulle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BAC. & CO. and LIPPENCOTT & CO. Also, SHOVELS, AXES and SPADES. All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address HUBBARD, LIPPENCOTT, BAKEWELL & CO., Pittsburgh, Pa. mail-16p-4f

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,

519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-tf-16p

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

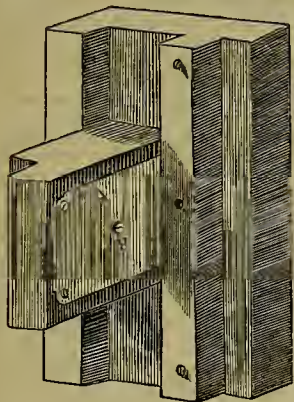
SAN FRANCISCO, SATURDAY, MAY 27, 1871.

VOLUME XXI
Number 21.

Sash Tightener.

This device is for the purpose of preventing the very disagreeable rattling of windows in their casings, is very simple in its construction, and its object is of really very considerable importance. It may be said that it ought not to be needed, that the windows ought to be so constructed as to fit nicely in the casings, so that no rattling is possible. This is very true; but as the construction is not so nice as this in very many cases, and as, where originally properly arranged, a shrinkage of the wood, or other cause, leaves too often a space between sash and casing, the fact remains that a sash tightener is very frequently a desideratum.

The accompanying illustration shows the device applied to a sash. It consists of a metal plate, *A*, fastened to the sash by two screws on the inner side. The outer edge of the plate extends into the grooves



of the casing, and is made to press against the casing by means of a short spiral spring which, placed under the plate, surrounds the screw, *B*. By means of this screw, *B*, the pressure of the plate against the casing may be regulated if found desirable.

The device can be manufactured at small cost and easily attached to any window. It is the invention of Mr. William Swett, of San Francisco, who has taken steps to secure his right through the SCIENTIFIC PRESS Patent Agency. The sash tightener may be seen at the hardware store of H. Rosekrans & Co., 135 Montgomery street, S. F.

THE PACIFIC STONE COMPANY, of this city, have published a pamphlet giving full information in regard to the Ransome Stone, and the best of testimonials with regard to their manufacture.

STEAMBOAT SPRINGS.—The *Territorial Enterprise*, of May 16th, says that the story that the Steamboat Springs had dried up, was a canard. They are running in as good order as ever; in fact, rather better.

THE news of the outrageous proceedings at Paris of the Commune is such as to shock the whole civilized world. The action of the fiends loses them all sympathy from all parties.

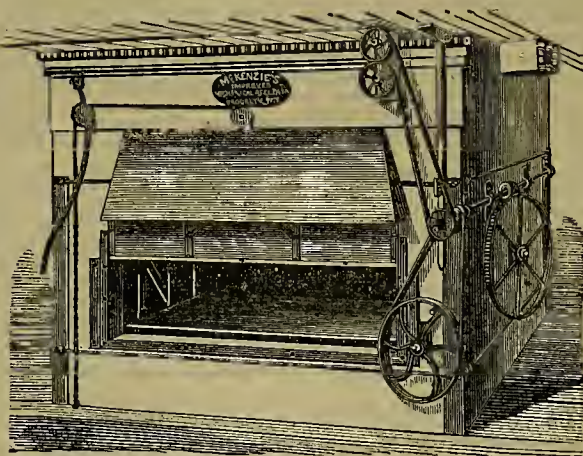
Baking by Machinery.

The introduction of machinery for preparing and baking bread on our coast, is an event of no little interest and importance. We believe that several unsuccessful attempts have been made previously, but it has been reserved for the enterprise and skill of the proprietors of the California and Boston Cracker Works to successfully inaugurate this important addition to our home manufactures.

The bakery is at No. 803, Battery street,

during the circuit. A shelf being loaded, the touch of a lever causes a partial revolution of the arms, carrying the loaded shelf into the hotter regions of the apparatus, and bringing down to the opening of the oven another full of delicately baked crackers, which are raked out into a basket, the shelf being again charged with a fresh lot.

Underneath the oven is the furnace so arranged that the smoke is all consumed, and the temperature is kept under perfect control. This is regulated so that the

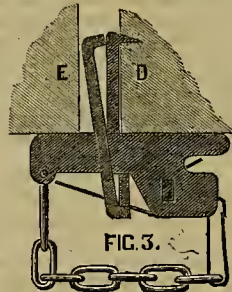
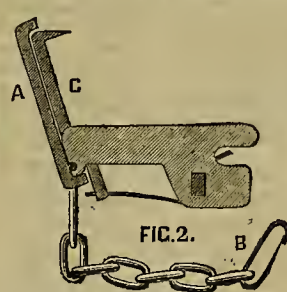
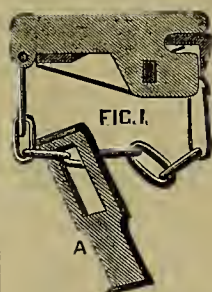


MECHANICAL REEL OVEN OF THE CALIFORNIA AND BOSTON CRACKER COMPANY.

near Broadway. At the entrance, one's attention is attracted by the lofty piles of flour sacks and by a most agreeable and appetizing odor. As we pass into the large room on the ground floor, we see hoppers, and mixers and rollers, all driven by machinery, and arranged so as to save manual labor. The various raw materials are put into a hopper and thence pass into the

crackers are "done to a turn" in one revolution,—neither too much nor too little.

The yield of the oven is carried upstairs to the packing room, where are barrels and boxes of excellent food. For transportation of material from one story to another, there is used an elevator, constructed by Messrs. Hobbs and Gilmore, the simplicity of which forms a strong recommendation



MELENDY'S COMBINED KEY RING AND DOOR FASTENER WITH COMPENSATOR.

proper apparatus for thoroughly incorporating the ingredients.

A final roller rolls the dough, when properly prepared, into thin sheets. At the time of our visit crackers were being packed. The sheet of dough slid down an inclined plane and under a peculiar cutter which divided it into pieces of proper size and punched the holes which are requisite to prevent distention in baking. An apron then carried the sheets to the man who charges the oven.

In this oven, a representation of which is here given, are ten shelves, 10 x 3½ feet, suspended on revolving arms in such a way as to retain their horizontal position

for it and for San Francisco manufactures.

In the factory, the use of machinery tends to cleanliness and to diminish the traditional peck of dirt which we are supposed to receive into our stomachs during each moon. Order reigns everywhere, and neatness prevails. Yet in the course of every ten hours, fifty barrels of flour are transformed into the various forms of crackers, cakes and biscuits, and sent off to hungry mortals. Of the excellent quality of the manufacture, we satisfied ourselves during our visit by personal tests.

The proprietors of the bakery are Messrs. F. Clay and H. T. Fairbanks, who have

spent a large amount of money in establishing their factory, and who have evidently used their money to the best advantage.

Melendy's Combined Key Ring and Door Fastener with Compensator.

This is a neat little device, which is exceedingly simple in its parts, yet on which three patents have been secured as improvements have been successively made in its construction. It is intended as a secure fastener of doors, and as such is said to be very popular, while, being exceedingly light and small, it can be carried in the pocket during the day, and used as a key ring.

Fig. 1 shows the device closed, as carried in the pocket. The compensator, *A*, is carried on the chain as shown, and on this chain are also carried the keys.

Fig. 2 shows the device ready for use as a door fastener, and Fig. 3 shows it after the door is fastened. When needed for this purpose, the claw-hook, *C*, is opened and placed between the edge of the door and the casing, with the jaw towards the casing. By closing the door, the jaw is driven into the casing, as denoted in Fig. 3, where *E* is the door and *D* the casing. The body of the apparatus is then slid along to the position shown in Fig. 3, and the door cannot be opened by any one outside, unless the wood of the casing is torn out.

In the figures (2 and 3), the compensator, *A*, is shown turned up to the back of the hook. This is used in case the door should have shrunk so that it does not press sufficiently against the hook, *C*, to force it into the wood. As shrunken doors are not uncommon to the traveler, the compensator is a valuable addition to the device. In Fig. 2 the chain, *B*, is shown unlocked, to put on keys.

The device is exceedingly simple and easily manufactured, so that it can be furnished at a low price. It is the invention of Mr. B. H. Melendy, of Melendy Brothers & Co., Manchester, N. H., who may be addressed for further information.

DR. J. LAWRENCE SMITH, of Louisville, Ky., one of the best mineralogists of the United States, the inventor of the very convenient and useful chemical or inverted microscope, and of high standing as a chemist, whose name is of frequent occurrence in the best scientific publications of the Union, has just returned home after a tour of several weeks among various places of interest in this State. The doctor has been of late engaged in examining chemically a number of California minerals, a collection of which had been sent him by Mr. H. G. Hanks, of this city, and has, we believe, discovered a new mineral. A description of this will undoubtedly be published soon.

LORD WALSHINGHAM, of England, is making an extended tour through California, Oregon and Washington Territory, studying the entomology of the coast.

MECHANICAL PROGRESS.

AMERICAN MANUFACTURE OF SMALL ARMS.—The following is from the *New York Tribune* of May 5th:—"The aggregate of service rifles manufactured and shipped to France by the Remington Company since the 21st of September, reaches the extraordinary total of 154,120. Adding to this 19,777 carbines and 40,350 army revolvers, the number of their own arms furnished to Franco by the Remingtons is 214,247, figures which seem to justify the assertion of the *London Times*, in an article deploring the petty organization and inadequate resources of the British small arms manufacture, that one American establishment possessed a larger capacity for production than those of all England combined. The recent adoption of the Martini-Henry breech-loader as the British Service Arm, has elicited the fact that, with her present capabilities of manufacture, England can turn out the 300,000 stand, which is accounted the proper complement for her regular army in four years. No circumstance could illustrate better than this the relative superiority of the small arms industry of the United States. The Remington establishment at Ilion is by no means the only one in our country possessed of a productive capacity unknown to the British industry. Hardly less extensive than the Remington, in scope of operation, is the great Hartford Company, founded by Col. Sam. Colt. In the superb armory of this company, a structure actually unique in the perfection of its adaptedness, are fabricated not merely the Berdan breech-loading rifle and the well known revolving pistol, but whatever style of small ordnance may be required, from a Gatling battery down to a Derringer. The Providence Tool Company, the Brown Manufacturing Company of Newburyport, severally producers of the Peabody and the Van Choate breech-loading rifles; the two Sharps establishments of Philadelphia and Hartford, the Smith & Wesson of Springfield, which is now executing an order of 25,000 army revolvers for Russia, and the Winchester of New Haven, manufacturing the eighteen-shot repeating rifle, are all organizations unequaled by any in England. But the Remington, whose facilities—crowding four acres of brick and mortar, employing from 1,300 to 1,400 workmen—many of them a second generation of skilled artisans—paying out monthly \$138,000 for labor, consuming annually from 6,000 to 10,000 tons of coal, contributing to the thrift and absorbing the products of a large rural district—have been in seven months adequate to the completion of more than 170,000 stand of rifles, assuredly hold the first rank, not only in the United States, but in the world."

IMPROVED TURBINE WHEEL.—A recent patent is upon "making the buckets separate and movable, so that they may be polished for the purpose of lessening friction, or removed without taking the wheel apart; and providing a flange or bead upon each bucket, made in sections or continuous the whole length of the edge of the bucket, the flange fitting into a corresponding groove in the disks of the wheel, and secured by a screw bolt passing through the disks into the flange or the edge of the bucket. The upper portion of the mouth of the scroll is made so that it can be removed, which gives ready access to the gate, permitting the latter to be removed or adjusted without disconnecting the wheel from the flume. The gate is also provided with adjustable strips or bars placed on the inside by which compensation for wear is secured and leakage prevented."—*Sci. Am.*

LIGHT TELEGRAPH CABLES.—Capt. W. Rowett recently read a paper before the British Association in which he advocates the adoption of much lighter cables than those now in use. The cable of '57 weighed one pound per fathom. Capt. Rowett thinks one ounce heavy enough. Such a cable, he says, would sink at the speed of two miles per hour, and could be run out even in tempestuous weather, and kept under as perfect control as a log line, without the cumbersome and complicated machinery now used to pay out heavy cables. The author regards hemp as the proper material for covering the electric core. The material can, he says, be soaked with a preserving solution which will make it practically indestructible, and which in contact with water becomes very hard. He thinks that by the adoption of light cables, messages could be profitably sent for one-sixth of the present price.

OVER-TESTING OF IRON WORK.—We quote the following from the *Mechanics' Magazine*:—"A moderate proof-load is quite sufficient to demonstrate whether the example in question is capable of performing the ordinary duty that will devolve upon it, while a very severe one cannot do more, and at the same time may permanently damage the structure. The over-testing of any piece of mechanism or example of construction may be not inaptly compared to the over-training of a young athlete. When the powers are over-taxed, they are inadequate to perform their work when the time arrives. * * * Independently of the reasons that we shall refer to which indicate that excessive proof tests should not be used, there is the undeniable fact that iron structures do subsequently yield under a much less strain than that which they bore apparently with ease at the time of testing. * * * The effect of over-straining, particularly if it be accompanied by shocks and sudden violent wrenchings, is to render iron that is otherwise of a soft ductile nature, exceedingly hard and brittle. In fact, there is very little doubt that incessant repetitions of impactive forces tend in the course of time to completely alter the molecular constitution of the material, and, in a word, to convert wrought iron into cast."

UTILIZING GAS WITH A VENEOANCE.—The *New Orleans Republican* for April 9th has the following: "Yesterday morning, Mr. J. B. Knight, agent of the Watertown Steam Engine Company, sunk a drove well in the rear of his office, with a view to getting a supply of water; and when at the depth of forty-six feet, a sudden and very powerful draft of gas was observed to flow from the mouth of the pipe. He immediately closed the pipe, thinking to utilize this gas for illuminating purposes, but found the pressure too great; when the idea struck him to direct it into the boiler of one of his engines and experiment with it in making steam. But no sooner had the connection been made than the engine began to run entirely by the pressure of the gas acting upon the piston, at a pressure of twelve pounds to the square inch; and so it continued all day yesterday, giving no sign of exhaustion." The *Times* of same date notes the same, and adds: "When we witnessed it in operation, the gage marked a pressure of twelve pounds to the square inch, and the gas from the discharge pipe was burning brilliantly."

COATING STEEL WITH MOLTEN IRON.—A patent has been recently taken out for the following process:—"The plate or other article of wrought iron or steel to be coated is covered with powdered borax and raised to a welding heat. It is then placed upon a level iron table, and surrounded with a frame to prevent the flowing off of the metal to be poured upon it. We quote a paragraph from the specification:—"The molten iron which has been mixed with borax, is then poured upon the surface of the heated plate or other article of wrought iron or steel. When a sufficient quantity of molten iron has been poured on as described, a plate of steel or hard smooth iron, of sufficient size to nearly cover the whole of the molten iron, is brought down upon its upper surface, and a pressure immediately applied sufficient to reduce the molten iron to the desired thickness, and also to expel all the air or gases that may be contained in the molten iron, and which would otherwise render the coating porous and of no practical value."

PLANING VALVE-SEATS.—A correspondent of the *American Railway Times* says: "Portable planers are now constructed for the purpose of planing valve-seats, etc., and such jobs as cannot well be placed upon the table of a planer. These portable machines may be clamped to the article to be planed in almost every position possible, either horizontal, vertical, slanting, or bottom upward, and worked either by hand or power; but they must be in the hands of first-class mechanics, in every sense, like all other complex and truly useful machines, in order to do a good job."

SNAKE-SKIN BOOTS.—Fifty skins of the anaconda have, it is said, been tanned by Schayer Brothers, at the Boston Highlands, for boot leather. The tanning process was similar to that observed in the manufacture of alligator leather.

BASE BALL IMPLEMENTS.—One New York manufacturer alone made last year 162,000 balls. Mills are running all the year round, turning out nothing but bats. The *Times* says "the supply is barely equal to the demand."

SCIENTIFIC PROGRESS.

CRYSTALS IN PLANTS.—Dr. E. M. Hale has an article in the *Journal of Microscopy* upon the value of the microscope to the pharmacist. We extract the following: "It has been proven by microscopic examinations that saline substances are spontaneously crystallized within the cells of plants, the crystals having been found existing in infinite numbers throughout the bark, wood and leaves of a great variety of trees and shrubs. Prof. Bailey, of West Point, first called attention to this subject. He observed the crystals in the ashes of the hickory; afterwards he examined the bark previous to its being subjected to the action of fire. When the bark is illuminated by the rays of the sun, numerous glittering particles are seen. An examination proves them to be crystals, for when thin layers of bark or sections of wood are viewed by a microscope, the crystals are detected imbedded in their natural position. They are, however, better seen by scraping the bark upon a plate of glass, upon moistening which with the breath the crystals are made to adhere to the surface, while the woody particles are readily blown off. These crystals are identical in every particular with the polygonal bodies found in the ashes of hickory wood. Prof. Bailey examined the wood and bark of nearly every indigenous and foreign tree, and with the same result. Even in the densest woods, such as mahogany and lignum vitae, the crystals may be found by scraping the wood into a watch-glass filled with water, picking out the woody particles and then examining the residue. The crystals are likewise detached in the minute particles that fall from worm-eaten wood, sawdust, and in the finer particles of ground dye-woods. This shows that even the finely ground medicinal barks, woods, etc., used by the pharmacist, may be examined successfully for the crystals peculiar to them. It only remains to examine all the medicinal vegetable substances, and ascertain the peculiar crystals belonging to each. Then, if these are delineated and appended to our works on Medical Botany, and Pharmacology, a great and practical advance in our knowledge of the purity of drugs would result."

THE ELECTRO-TONIC STATE.—The following is a brief abstract from *Nature*, of an article in *Silliman's Journal* by Dr. A. M. Mayer, on "the physical condition of a closed circuit contiguous to a permanent and constant voltaic current; or, on the electro-tonic state." The author commences by giving extracts from Faraday's investigations, in which he uses the term electro-tonic state to indicate the condition of a wire in which an electric wave has been induced by the proximity of a conductor through which a constant current was passing. He has endeavored to obtain some clue to the condition of such a closed circuit by passing through it another electric wave of a constant intensity, and which he ingeniously generated by slipping a flat spiral from the end of a permanent magnet, as described in the number of this journal for November last. Currents thus obtained are found, by means of a delicate reflecting galvanometer, to be practically of the same intensity; for on repeating the experiment several times this produced deflections differing from one another to an extent not greater than 20". In this manner it was determined that a definite electric current, traversing a metallic circuit in proximity to another traversed by a powerful voltaic current, has the same intensity, whether passed in the same direction as the latter or in a direction opposed to it. The author thinks, however, that a diminution in the velocity of the current ensues, and he intends to continue his experiments in order to settle this question.

ANTHROPOLOGICAL INSTITUTE OF NEW YORK.—This is the new name of the old American Ethnological Society. Some fifteen gentlemen connected with the Society recently gathered at the residence of Hon. E. G. Squier, made this change of title, and adopted new by-laws. Mr. Squier, in introducing the subject of the meeting, said that "in the similar organizations of London and Paris the functions of Ethnology had been long since exchanged for the broader ground of Anthropology, so as to embrace under that general title the co-operative labors of the anatomist, the philologist and archaeologist, and combine in one scheme of study whatever relates to historic man."

HALLIEN'S PARASITICAL INVESTIGATIONS. The *Philadelphia Medical Times*, in noticing a critique upon the above by Dr. Weise alludes also to the researches of Dr. Billings (U. S. A.), and says:—"Dr. Weise is even more explicit in his statements than our Washington authority, declaring that he has found Prof. Hallien's work to be 'one mass of errors.' Dr. W. worked at the bedside day after day, studying all the secretions, the blood, the lymph of pustules, etc., and receiving from all the same answer, that they contained no cryptogamic growth. Nor was this from want of a sufficiently high power; for he used a No. 10 Hartnack's immersion lens. * * * 'In this connection, it is desirable to put upon record the results obtained at the Surgeon General's Office, Washington, in repeating the experiments of Dr. Jos. G. Richardson in which he claims to have demonstrated the passage of bacteria and vibrios from the stomach into the blood. It will be remembered that this method was examination of the blood before and after ingestion of putrid beef-juice. These experiments were repeated in precisely his manner, under the supervision of Dr. Woodward, so often and so carefully, and gave so uniformly negative results, that there can be but little doubt that there was some fallacy in those of Dr. R., and that vibrios do not appear in the blood after the ingestion of matters loaded with them."

RIGHT-HANDEDNESS THE RESULT OF NATURAL SELECTION.—Dr. Pye-Smith, according to the *Lancet*,—disposing of the theories that left-handedness is to be accounted for by transposition of the viscera, as asserted by Von Baer and others, or by an abnormal origin of the primary branches of the aorta, proceeds to argue that right-handedness arose from modes of fighting adopted. "If a hundred of our fighting ambidextrous ancestors made the step in civilization of inventing a shield, we may suppose that half would carry it on the right arm, and fight with the left; the other half on the left, and fight with the right. The latter would certainly, in the long run, escape mortal wounds better than the former (the heart being protected), and thus a race of men who fought with the right hand would gradually be developed by a process of natural selection." Of course the habit once acquired, of using the right hand more than the left, would be hereditarily transmitted from parent to child.

COLOSSAL SEA-WEED.—From the microscopic examination of the structure of specimens of the fossil trunks described under the name of *Prototaxites Loganii*, and which Principal Dawson affirmed in his Bakerian lecture before the Royal Society, to be the oldest known instance of Coniferous wood, Mr. Carruthers has discovered that they are really the stems of huge Algae, belonging to more than one genus. They are gigantic when contrasted with the ordinary Algae of our existing seas, nevertheless some approach to them is made in the huge tree-like *Lessonia* which Dr. Hooker found in the Antarctic seas, and which have stems about twenty feet high, and a diameter so great that they have been collected by mariners in those regions for fuel, under the belief that they were drift-wood. They are as thick as a man's thigh. —*The Academy.*

EXCEPTIONS PROVE THE RULE.—"It is the male birds who take the active part in pairing, and who not only fight for the possession of their mates, but display their colors, their voice, or whatever be their peculiar attractions, in order to gain the same end. This rule is confirmed by the exceptional case of the cassowary and a few other species in which the hens court the male birds, fight together in rivalry, and accordingly assume the brighter colors and more attractive shape usually worn by the male. Not only the parental and incubating instincts, but the usual moral qualities of the two sexes are in these cases reversed: 'the females being savage, quarrelsome, and noisy, the males gentle and good.'—*Darwin.*

INFLUENCE OF HEAT ON THE REFRACTION OF LIGHT.—At a late meeting of the Imperial Academy of Sciences, in Vienna, Prof. Stefan presented a memoir on the influence of heat on the refraction of light in solid bodies, containing a series of determinations of the refraction of rock-salt, sylvine (perchloride of potassium), alum, fluor-spar, and glass, at temperatures of 53°-6-201°-2 F. The refractive power of the first four bodies decreases uniformly, and for all parts of the spectrum, with the increase of temperature; the refractive power of glass increases with the temperature, and the increase becomes greater in passing from the red to the violet end of the spectrum.

CORRESPONDENCE.

The Tea and Coffee Plant in California.

EDITORS PRESS:—It may not be uninteresting to many of your readers to state that both tea and coffee are indigenous plants in California. The tea plant or hush grows in Sierra and Plumas in abundance, wild, from which the Chinese manufacture excellent tea, better than the imported. [?] This fact I have been cognizant of since 1854-55, and have partaken of it often. It is a hush about four or five feet high, having serrated, olive-shaped leaves, and delights to grow on mountain sides not far from some mountain stream, and is a hardy evergreen.

Coffee grows every where below the granite formation on a slate soil. It is distinguished by its lanceolated leaves, and peculiar herry, first bright red, then purplish-black. It is much sought after for browse, especially by sheep and goats, and has the same anti-sporific quality as its kindred of Tartary. The sheep who partake of it are extremely vigilant, especially the males. The berry is smaller and rounder than either Mocha, Rio, or Java coffee, and is vulgarly said to be (I don't know upon what grounds) poisonous to human beings. The hull, when ripe, has a sickening sweetish taste, but as I was afraid to swallow it I have invariably spat it out. If this is of any interest to you, you are welcome to publish the information, and perhaps some of your readers may be induced to experiment upon it. It never grows upon soil having granite for a foundation or bed-rock.

THOS. R. STODDARD.

The so-called "Coffee Plant," to which our correspondent refers, is the *Frangula Californica*, formerly known as a *Rhamnus*, of the Buck Thorn family. The berry is not poisonous as generally supposed. The plant grows in this city, on the hills back of the Mission. The true coffee of commerce belongs to the natural family *Rubiaceae*, and is a very different plant from the one alluded to by our correspondent. The coffee tree of Arabia is an erect, conical-shaped, low tree, with a light brown bark, and opposite, oblong, wavy, shining light-green leaves. The berries are first green, then red, and black when ripe. The beverage prepared from these berries is said to have been used in Ethiopia from time immemorial, and to have been introduced into Arabia from Persia in the 15th century, and in Europe soon afterwards.

The real tea plant (*Camellia*) does not grow native in this State; but the Chinese use the leaves of several plants as substitutes. To which of these our correspondent refers, we cannot tell without seeing a specimen.

Krupp's Steel Works.

[Written for the Press.]

The following concerning Krupp's enormous works at Essen, Prussia, is translated from a private letter written (in German) by a gentleman who obtained admission into the works. A number of years have elapsed since the letter was written, but as we are unaware of the previous publication of anything of the kind, we give it as a thing which will be interesting and new to many.

How Steel is Made.

The steel, which is melted in crucibles, is, as far as I know, but puddled steel, and is made from white iron, called spiegeleisen, and gray iron, equal parts. Gray cast iron is used for the purpose of easier melting and working. In each puddling furnace, 400 pounds of steel are made within the space of two hours. In order to get the melting iron covered, some iron slag, from the last puddling process, is added to it.

At the beginning of the process, the iron pieces are placed in the puddling furnace in an erect position, the flame being conducted over them very slowly, a chimney of 200 feet supplying the necessary draft. In the chimney itself is placed an upright boiler for making all the produced heat as useful as possible. A boiler in the before mentioned position does not deposit so much sediment as in any other position, lasts longer, and is safer.

As soon as the iron has become liquid, it is stirred up with a hook-like iron bar, reaching to the bottom of the furnace, without interruption. The iron being thus perfectly and thoroughly liquified, a kind of flux of sand and salt is

added, by spreading it over the surface and stirring it into the melted iron. Thus all or nearly all of the impurities are brought to the surface.

During this, the reddish blaze changes by degrees to white, and this is exactly the time when the iron becomes converted into steel, and therefore must be known and well observed by the puddler, who has to shut off the draft now and stir up the liquid mass, the steel becoming thus coherent or clotted. Should the puddler neglect this important moment, the steel becomes wrought iron. The puddler then divides the thus prepared liquid mass into four nearly equal parts of porous and spongy aspect. Every piece of steel thus prepared, is taken by means of peculiarly adapted tongs, placed on an iron basket wagon, and carried off to the steam hammer, where, by a sudden push of the hammer against the anvil, the steel piece is brought under the hammer. At this moment, the forger takes up the piece, by a series of slow blows with the steam hammer removes the remnant slags, and then welds the porous spongy mass into a piece $1\frac{1}{2}$ feet long and 6 inches square. This done, the piece is returned to the furnace, and reheated and again forged under the hammer. The same process is observed with the three other pieces. This process having been repeated three times upon every piece, several of them are welded together to obtain the right weight, and then rolled into rails or spring steel.

As often as 400 pounds of steel have been worked out, the channel of the puddling furnace at the part where the fire goes to the chimney has to be repaired. This is done by the removal of the fire-bricks easily placed at the side, and by removing the cinder from the lowest part of the channel, which part after this is covered with wet sand. Meantime the draft is of course stopped off.

From what has been said, it becomes evident that the spring steel, now generally used for rails for roads where, particularly in regard to curves, great strength and toughness are required, is directly made from cast iron. Sometimes to get the best kind of steel, three kinds of cast iron are made use of, whereby the produced steel partakes of the good qualities of all of its components.

The steam hammers are like those made in England.

The Manufacture of Coke.

Only bituminous coal is used in the puddling process, and consequently the larger pieces are chosen for this purpose, the smaller ones being left to be coked.

The coking is very deliberately done in 118 ovens, to which 60 more have recently been added. Each oven takes about 240 Prussian sheffels, a measure not far differing from the American bushel. Thus the quantity of coal converted every 12 hours into coke, would make up nearly 40,000 bushels, provided the bushel be equal to a Prussian sheffel.

The coke ovens are a kind of square iron receivers with many small passages or culverts joining into one common channel which is connected with the chimney.

The operation of coking has to be interrupted when a small blue flame appears, at which moment the passages are shut up. Each oven is 30 feet long, 30 inches wide, and 4 feet high. Over these ovens rails have been laid for coal cars to run, and thus the ovens can be directly charged from the cars through an aperture, which is closed during the process of coking.

The coke is removed from the ovens by a machine consisting of a wheel, rod and crank. For the purpose of operating this machine, a locomotive is now being constructed. All the coke when taken from the oven is extinguished by water. The gas produced in these ovens has not yet been utilized, but in another factory of this country it has been used for heating the steam boilers.

The Casting of Cannon.

The casting of cannons is done in iron molds, the interior of which is loamed by means of a brush, and then perfectly dried. By this means the casting is prevented from sticking to the molds. The casting is done by emptying a sufficient number of crucibles, each containing 60 pounds, one after another, without interruption, into the mold. Near the ingot hole, the mold has a ring, so that by means of tackles it can be lifted, and while the ingot is red hot it is lifted and placed in a receptacle of mason work, the bottom of which is covered with coke dust, and finally the mold is covered all over with coke dust. The coke dust becoming red hot and burning, the piece is kept hot for several weeks, by adding fresh dust as it (the old) is consumed. After some months the steel piece having become cooled has then to be forged.

It is forged now under a hammer of 100,000 pounds weight. The anvil is angularly deepened, so that pieces of different calibers can be put on and worked. In this way the piece has a steady position. Turning the piece is effected by four cranes. Moving the piece backward and forward is also accomplished by a system of cranes.

The heating of the piece is done in a reverberatory furnace, to which it is brought on a railroad by a steam engine. As the heating of so large a piece of steel requires some time, two furnaces are in use at once, so that while one piece is being forged, the other is being heated up to save time.

Here too the reverberatory furnace uses bituminous coal.

The black lead or graphite crucibles used have a capacity of 50 to 60 pounds, are made

by hand, and cost about \$2. The iron molds are loamed inside and then dried at a temperature of 167° Fahrenheit; but before filling them they are exposed to a much higher heat. The crucibles are covered by a cover with a round bole of two inches, which can be closed with a stopper of clay. Through this hole the condition of the steel can be examined while under the melting process.

Twelve crucibles at once having been filled with rolled pieces of puddled steel, two inches in length, and charged with the necessary flux, are covered and placed in the ebafery, where they are heated by degrees. After two hours, they are put upon the stands or supporters of the melting furnace, surrounded with coke which, by the draft of the chimney (200 feet high) instantly ignites and brings the crucibles to a white heat. After a few hours, the steel, having become thoroughly liquid, is examined with an iron bar $1\frac{1}{2}$ inch thick.

When the steel runs from the bar emitting sparks, the operation is done. Then the channel connecting the furnace with the chimney is closed by the damper, and the crucibles lifted from the fire and brought to the molds. By a blow from below against the somewhat projecting cover, the latter is removed, and the slag being taken off, the steel is poured into the iron molds covered inside with clay, as before mentioned, for ordnance. The quality of the steel depends very much upon the good assortment of the stock which has been used. Krupp's furnaces are like those used by the English without blast.

Krupp's crucibles are made of clay from the Rhine and black lead, mixed and worked on the potters wheel at the place. The firebricks are also made here.

Making Steel Rails.

The rolls for making steel rails do not differ from the common ones for iron rails. These steel rails are made of puddled steel, being cheaper and containing somewhat less carbon than cast steel.

It must be mentioned here that these rails being cut to nearly the proper length, and being supported at both extremities, are turned on the ends by means of two turning machines. Before this turning, however, is attempted, the rails have to be straightened, and this is done by a strong screw press.

In Prussia, the connection of the rails is altered and effected by plates of wrought iron rivetted; thus expansion and contraction of the rail cannot do any harm.

The cupola furnaces in use, both for remelting cast iron and for iron castings, have a height of 30 feet by 8 feet diameter; the wall made of fire bricks being 20 inches thick. For melting the cast iron, coke with quicklime is used.

The tires are cast in loam molds, thoroughly dried and heated before using. The ingot is put while yet hot into coke dust, to keep it hot. After some days, heated to a high red heat, it is passed through rolls to condense and consolidate, instead of forging it, and then allowed to cool slowly. After having been turned it is again heated and put on the wheel, upon the periphery of which it becomes cool and light.

W. H. DAFIN.

Philadelphia.

[To be continued.]

Mexican Mining Words.

[Continued from page 211.]

Workmen and Employers.

El Dueno—The owner.
Los Operarios (Rayados) or Pueblo—The workmen of all kinds employed in a mine by the owner.

El Administrador or Amo—The Superintendent.

Un Perito—An expert.

Un Tenedor de Libros or Dependiente—A book-keeper, accountant or clerk.

Un Rayador—A time keeper, who also serves out tools, fuzes, candles, powder, etc.

El Minero—The head miner; also a man who understands mining.

El Interventor—The receiver of a mine (in a law suit).

Los Barreteros—The miners, or men who drill the holes and fire the blasts off. They work in pairs. The one who strikes is called *Golpeador*. They work by task almost universally, and will earn about \$10 to \$15 per week. They are paid so much for each hole, from 37½ cents to \$1, as the case may be, averaging 50 cents. They only work about 4 days in the week, and are great gamblers. Also are adepts at stealing ore. The miner points all the holes they drill.

El Pegador—The man who fires the blasts.

El Poblador—The under foreman.

Los Tamareros—The rock carriers—men in lieu of our wheelers. The only difference is that they carry out of the mine on their backs all the ore and waste rock. This is done in a leather bag, suspended from the forehead. In a large mine they go in gangs, hosed by a *Culero*. They receive 75 cents to \$1 per day.

Un Achichingue—A man who packs water out of a mine in a leather bag, *Bota*. Often work by contract, to keep a mine clear of water. This is a distinct branch, and is very dangerous and arduous.

Los Quebradores—The "sorters," or cleaners of ore. They receive \$1 per day, and are always the old miners who are too old to work any longer. They are good judges of ore (*Pintistas*). They separate the ore thus:—into *Gavarros*, pieces of ore from the size of an egg up to an apple; *Gramas*, chips of ore;

and *Tierras de Labor*, chips resulting from blasting, or *Tierras de Yunque*, dust and fine chips from the assorting block. The *Gavarros* go into the battery first, while the others go directly into the *Tokonas* (pans). The *Tierras de Yunque* are usually valued at one-half of the value of the *Gavarros*. The others are poorer.

Un Velador—A watchman.

Una Entrada—A shift of men going into a mine to work.

Un Adenador—A timberer.

El Maderero—The man who cuts and delivers timbers to a mine.

Maquinista—Mechanic or engineer.

Lapidarios or Gambusinos—Men who live by stealing ore and selling it.

Partidarios or Laboristas—Men who work a mine or labor on shares.

Buscones—"Chloriders."

Vetero or Rumberador—Prospector.

El Descubridor—The discoverer.

Accionista—Stockholder.

El Habilitador—The merchant who outfits a prospector, or furnishes tools, food, etc., to a *Partidario* to work a mine. On a large scale, he is called *Acidor*.

"Zorilla"—The boy who brings meals, carries tools, runs errands.

Un Liso—A slip.

Durango, Mexico.

C. B. N.

Gilpin County, Colorado.

From the report of the committee appointed to gather statistics relative to the traffic of Gilpin county, Colorado, we make a few extracts with regard to mining.

The bullion production of the county reaches \$2,500,000, averaging nearly \$500 to each man, woman and child. The ore production is estimated as follows: It is assumed that each 10 stamps in use consume 7 tons of ore; there being 853 stamps now employed, 595 tons of ore per day are required, or 178,500 tons per year. The consumption of wood is noted at 170 cords per day, or 85 tons of coal; for the mines and mills; the consumption of wood in stores, offices and dwellings in Central City, Black Hawk and Nevada is set down as 4,000 cords.

The following table is condensed from more special ones.

No. of mills.....	83
No. of stamps.....	1,597
No. of stamps running.....	853
No. of mill engines.....	86
(No. of horse-power used.....)	3,485
No. of hoisting engines.....	1,361
(No. of horse-power.....)	79
(No. of horse-power used.....)	312

It is estimated that the present capacity of the mines worked corresponds to 55,600 tons of smelting ore. Thousands of lodes have been discovered, of which over 300, averaging from 1,000 to 3,000 feet surface measurement, have been worked and assayed by the Territorial Assayer. There are said to be at least 60 miles of lode property, every foot of which can be pointed out, on which there are not less than 8 miles of shaft, varying from a few feet to 800 feet in depth, and over 16 miles of drifting, besides a very large amount of tunneling.

The total daily up freight for a railroad is estimated at 149 tons; down freight, 115 tons of smelting ore. Present passenger travel, 20 persons daily.

Withdrawal of Railroad Lands.

We find the following in the *Los Angeles Star* of the 10th instant:

The plat of withdrawal of the lands designated for the Southern Pacific Railroad purposes was received yesterday by the Register of the United States Land Office, accompanied by the instructions of the department. The diagram designates the route of said road, which is by the way of Tehachape and Soledad Passes, down the San Fernando valley to Los Angeles; thence to San Bernardino, through the San Geronio Pass and Cahuilla Valley to Fort Yuma. The breadth of land covered by the withdrawal is sixty miles in width, thirty on each side of the line, the odd sections accruing to the road, except where prior rights have vested.

Within the twenty-mile limits the even sections are increased in private to \$2.50 per acre, and an ordinary homestead under the act of 1862, can only embrace 80 acres. Between the twenty and thirty-mile limits the even sections are held at the old rate. The withdrawal takes effect from to-day, the date of its receipt at the District Land Office.

MINING SUMMARY.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SCENECTADY.—*Miner*, May 13th: Capt. Moore, who has charge of the mine, informs us that he considers the late strike of more importance than any heretofore made.

RAISING.—The mill of the Monitor & Northwestern Co. is going up. This will be one of the finest mills in the country. It is so planned that the ore dumped at the level of the road, takes a downward course through the different machines with a very small amount of handling.

ELDORADO COUNTY.

GEORGETOWN Cor. of *White Pine News*, May 16th: The shipment of gold from Georgetown will aggregate a quarter of a million the present year, considerably above the last. Quartz and 'seam' mining now constitute the chief resources. Recently Bateman, McNevin, and others, who have made their fortunes in Eastern Nevada, have purchased the St. Lawrence quartz mine and are opening it with fine prospects. A few other claims promise well, and the finest inducements are offered capitalists. A singular feature in mining is the washing down of bed-rock by hydraulic, here called 'seam mining.' Several ranges of hills are composed of rotten bed rock of slate, seamed with numerous layers of quartz of various thickness ranging from an inch to twenty feet—all of which is so soft that it can be piped down with the aid of an occasional blast, and washed through a sluice. The gold seems to have been freed from its original matrix by decomposition, and is easily saved. The Whiteside claim, near Georgetown is one of this character. From this, with seventy inches of water, \$4,000 in a week has been obtained, and the general average is good. Woodside quartz mine, which created such an excitement, a few years ago, when pockets were found showing about equal parts of gold and quartz, is now filled with water, and lies neglected, awaiting the purchaser with capital and enterprise to open it. Mameluke Hill and Georgia Slide, from which many millions have been taken, are but masses of decomposed quartz and soft slate, and are by no means exhausted.

FRESNO COUNTY.

QUARTZ.—The *Mariposa Free Press* says: John Keegan and Martin Medley have brought in specimens of quartz from Spangled Gold Gulch, which are extraordinary for richness. The gold is coarse and in fantastic shapes, running through the quartz. The gulch is 30 miles from Mariposa.

INYO COUNTY.

OCOLA.—*Independent*, May 13th: The boys are into their ledge at last and find it a pretty good thing. We saw a twenty pound specimen of the black, splendid looking ore, which assays \$1,500 per ton. Drifts on both sides of the tunnel disclose bodies of the ore, and a ton was taken out on the first day.

LASSEN COUNTY.

BIG VALLEY.—*Yreka Union*, May 17th: Mr. McKendra, one of the firm of Enlers & Co., owners of the rich claim of Providence Hill, near Big Valley, reached Yreka direct from the claim, on Sunday. Rumor hath it that they have been offered \$250,000 for the claim by a San Francisco company.

NEVADA COUNTY.

WEBSTER.—*Grass Valley Union*, May 19: The Webster Co. cleaned up on Thursday, after a run of six hours, \$500.

LOCATED.—Same of 21st: The South Idaho Co. has located 20 claims of 100 feet each, on the Idaho ledge, to commence on the eastern boundary of the Idaho company's ground. The rich yield for years of the Eureka, and later from the adjoining claims of the Idaho, has made it a matter of surprise that the extensions have not been opened up long ago.

MEADOW LAKE.—*Telegram*, May 16th: The mines at Carlisle and Meadow Lake are improving. A large body of rich ore has been struck in the 190-foot level of the U. S. Grant mine at Carlisle. An 8-stamp mill is constantly at work. Ore of common grade yields \$30 per ton. The mill will be enlarged and a furnace attached thereto this season. The Pennsylvania company are taking out rock for custom crushing. Reduction works at Meadow Lake are to begin work in a few days.

PLACER COUNTY.

TWO THOUSAND DOLLARS PER DAY!—*Stars and Stripes*, May 18th: At Greene's mine between Auburn and Ophir, two and a half day's crushing last week, with four stamps and one Hepburn pan, realized 185½ oz. of retorted gold. This is at the rate of \$1987 per day and gives a total of about \$28,000 within the past month.

RATTLESNAKE.—At Bole's Ranch, above Rattlesnake, a part of the bar included in the claimed tract is worked as a mining claim by hydraulic process by Mr. Boles and the brothers Peter and Milton Cary. The channel of the mining ground covers about four acres; the "face" where they are now operating is about 25 feet in depth; being a body of lively looking gravel which prospects richly from the top to the granite. The present yield is seventy dollars per day. They use 11-inch iron supply pipe; have a fall of one hundred and ten feet and drive five hundred inches of water through a four-inch nozzle.

The North Fork Ditch is nearly full of water.

GREAT CREVICE MINING Co.—*Grass Valley Union*, May 20th: On the middle fork of the American river, at American Falls, a company, composed principally of Grass Valley men, have for a number of years past owned an extensive mining claim, in the effort to open which they spent many thousands of dollars, year after year. The Great Crevice Co. is incorporated to work a similar claim one mile below. The bed has not been approached for about twelve years, yet those acquainted with it were fully convinced of its richness. Within the past year or two, however, a new mode of river mining has been discovered, which consists of sinking a large iron tube (five feet in diameter) into the gravel bed until solid bottom is struck; then excavating in and around this tube, and tunneling under the river. This will be the plan adopted here. One thousand shares at \$5. will be sold to enable them to erect the works.

PLUMAS COUNTY.

MORE STAMPS.—*Quincy National*, May 12th: The Argentine mines are being developed quite rapidly, and there is no doubt in regard to their richness and permanency. We are informed that another battery will soon be added to one of the mills.

SIERRA COUNTY.

ITEMS.—*Messenger*, May 20th: Several strangers are looking at quartz in this vicinity... The Bald Mountain Gravel Co., of Forest City, have struck a streak of gravel in their tunnel... The Hawkeye Co., at Howland Flat, had a cave last week... P. Grant has struck very rich rock in the old Leonard mine, now owned by him.

WOLF CREEK MINE.—*Sierra Age*, May 20th: A. Chappius & Co., have got their 8-stamp mill in operation and are crushing excellent rock.

TRINITY COUNTY.

NORTH FORK.—Cor. of *Journal*, May 20th: There are good reports from Rattlesnake—the miners all doing well. Brown's creek and the upper North Fork are attracting the attention of miners. Nine men have already gone that way, and more probably will go.

CANYON CITY.—Cor. of the same: Mining goes on with results generally good. O. L. Slack & Co. are constructing a car to run in their bed rock tunnel. The track will be eight hundred feet in length.

Two sales of mining claims have been effected within the past week. Mr. D. McEllduff has purchased the Clothier claims, on Hykes Hill, for \$250, and Mr. Jos. McGillivray has bought John Franklin's claim, paying \$200 dollars therefor.

Nevada.

ELY DISTRICT.

QUARTERLY STATEMENT.—The *Record* for May 14th gives the County Assessor's statement for the quarter ending with March. We copy totals: Tons of ore worked, 7,204. Amount bullion produced, \$697,549. Average per ton, \$96.82. The *Record* thinks that over \$500,000 was lost for want of Stetefeldt furnaces; since with them 85 per cent of the silver could be saved instead of 50 per cent as now.

BULLION.—Wells, Fargo & Co. shipped, on May 12th and 14th by way of Salt Lake bullion valued at \$11,717.05. On May 17th: For Barnum W. Field 9 bars valued at \$7,922.02; for Meadow Valley, 5 bars valued at \$6,099.83; for Raymond & Ely Co., 8 bars valued \$12,303.15. Total \$26,325.

OTHER MINES.—Same of 18th: Aside from the well-known mines on Spring Mountain, claims have been located on the other side, in an easterly direction, for a distance of five miles. Within two or three weeks a

number of these have been started up, and veins of extraordinary richness developed.

ESMERALDA.

PINE GROVE.—*Enterprise*, May 20th: The Wilson mine is the only one at present actively worked. Owing to want of capital and bad management most of the mines and mills in the district are lying idle. Many of the inhabitants have moved to other districts, and the place is full of empty houses. The King mine, at Rocklin, five miles southeast, is shut down principally on account of the inefficiency of the mill. They have a lead three to four feet in width, and their ores pay \$30 to \$50 per ton, but mismanagement has swamped them. Scarcely a mine in the region has been properly opened, yet the whole country has been scratched over. A lead called the Salt River, six miles northeast of the town, contains pockets that are immensely rich in free gold and black sulphurets of silver. Our informant brought in a specimen from this lead, which contains some two ounces of pure gold, yet the whole lump scarcely weighs three ounces. The lead varies in width from a few inches to three or four feet. The man who owns it works the ore in a hand mortar. Near it, on Salt river, another vein was found a few days ago since which yields \$200 per ton.

EUREKA DISTRICT.

RICHMOND.—*Sentinel*, May 20th: The Richmond Co., on the 17th inst. made one "tap" of bullion weighing 5,028 pounds, which when assayed gave a value of \$1,614.52 per ton.

HUGE.—We saw, at the Empire mine of the Phenix Co., a solid piece of ore 5 feet 6 inches in length—3 feet wide and 20 inches thick. A piece had been taken from each corner and assayed, and it gave a result of \$268 per ton.

SILVER WEST FURNACE.—Thomas J. Taylor has sold his furnace to the Phenix Co. They will proceed at once to arrange the buildings. A No 5 Sturtevant blower and Blake's crusher are on the road. This furnace will be as fully equipped as any in the district, and will be under the supervision of Charles Von Liebenau.

HUMBOLDT.

ARIZONA MINE.—*Silver State*, May 20th: For some days past the ore extracted has improved in quality, and the quantity of first-class ore shipped for treatment, has materially increased. We understand that the machinery for the new mill of the Arizona Consolidated Co. for the working of tailings, has nearly all arrived from the foundry. The company expect to have it running by the first of June.

RELIEF DISTRICT.—Cor. of same: The Black Knob Co. have commenced work on their ledge, half a mile south of the Central Pacific mine. They have a fine ledge of mineral, three feet in width; in fact, it is the richest vein in the district yet developed. They are sacking ore to be shipped to the Auburn Mills, Reno. The Silver Star lode, owned by Thos. Voorhies, soon to be opened, shows very good float. The Batavia and Pacific Co. have men employed laying water pipes from a spring in the Black Knob Valley to the mill site.

RAILROAD DISTRICT.—The *Elko Independent* of May 20th gives notes of a trip through the district. The Humboldt ledge shows the largest body of ore. The Last Chance is nine feet in thickness. The Lincoln has a 3-foot ledge of ore averaging \$80 per ton. The True mine gives working prospects of \$100 per ton without any particular selection. The Tripoli has a large quantity of ore sacked for shipment. South Fork has four feet of good ore. The California has a 5-foot ledge of solid ore. So has the Orphan Boy, belonging to the same Co.

RESE RIVER.

BELMONT.—*Renoille*, May 16th: Yesterday we heard that a lot of El Dorado South ore—something like two hundred tons—was about being hauled to the Manhattan mill for reduction.

THE CITIZEN'S MILL.—Everything connected with the mill thus far, has progressed satisfactorily; the machinery is being put together rapidly.

WASHOE.

OPHIR.—*Enterprise*, May 21st:—At present no work is done in the underground works except in the bottom of the shaft, preparatory to putting in a new pump. The machinery is on the ground.

YELLOW JACKET.—This Co. are taking out 170 tons of ore per day, which mills \$36 per ton on the average. They are preparing to start their incline on the 1,200-foot level. The drift north on the 1,100 foot level is pushed vigorously.

CONSOLIDATED VIRGINIA.—The drift south from the main west drift was yesterday in 45 feet, in quartz that is gradually improving. The north drift is still in very

hard rock. There is no water.

SEGREGATED BELOHER.—Taking out 12 to 15 tons of ore per day from the east body. A prospecting drift is being run toward the Belcher linc, distant 50 feet.

SIERRA NEVADA.—Having purchased the Kenosha mine, this Co. are freed from the injunction, and both mine and mill are in full operation. They have not yet commenced mining in the Sacramento and Meredith portion.

SUTRO TUNNEL.—The Tunnel was in last evening 1,981 feet. The ground is now such that excellent progress is made.

LADY BRYAN.—The mill has been in constant operation during the week, and the mine is looking well. A deposit of ore, rich in chlorides and showing free gold, was yesterday found upon the 80-foot level. The prospects are very promising.

KENTUCK.—This Co. are taking out 30 tons per day, which is reduced at the Excelsior mill. The Gold Hill mill will be started up during the week. They are now able to extract ore from the old burnt district between the 600 and 700-foot levels. Although the fire occurred two years ago the rock in many places is as hot as to burn the naked hand.

CHOLLAR-POTOSI.—During the week 1,670 tons of ore have been extracted, 1,560 of which, assaying \$25.25 per ton, have been sent to the mills. During the week they shipped \$67,000 in bullion.

OVERMAN.—The Co. are taking out 35 tons of ore per day from the 226-foot level, which is being worked at the Devil's Gate mill.

CALEDONIA.—This Co. are now taking out nearly the usual daily amount of ore.

DANEY.—A letter from the Supt. says:—The south drift is in 26 feet. The north drift is 20 feet in the vein, which appears to be well defined on this level. The vein looks encouraging in every respect.

SAVAGE.—Extensive repairs are yet to be made on the shaft. About 120 tons of ore are daily extracted. As this is from several different grades of rock, the average for the week has not reached expectations.

HALE AND NORCROSS.—The yield of ore per day is about 115 tons.

GOULD AND CURRY.—We understand that the work in and around the shaft, and on the tanks and bob-pits, is prosecuted vigorously, and the requisite preparations for prospecting at a greater depth are made with a view to permanence.

BUCKEYE.—The Co. are pumping out the water from the lower works, using a Blake's Patent Pump which throws twenty-four inches of water.

IMPERIAL.—The situation of the mine is no worse than was that of Crown Point before the grand strike.

SUCCOR.—Owing to bad air in the farther end of the main tunnel no work is being done there.

HOPE.—This mine has passed into new hands and is again being worked—this time in a manner, it is thought, that will make it a paying concern.

The *Carson Register* of 21st says: The mines on the eastern side of the river, five miles from this city, are looking better every day. Assays from one claim show \$205 in gold and silver to the ton and fifty-six per cent. of lead.

SIX-MILE CANYON.—The *Gold Hill News* gives a full and interesting description of Parke & Bowie's tailings mill, Lady Bryan mine and mill, and the Gould & Curry mill. The latter, a conspicuous monument of past greatness, is, like its mine, empty. The Lady Bryan mill is substantially built, and its machinery of the most approved description throughout, Parke & Bowie's mill is arranged in the most perfect labor-saving style, and works 100 tons of tailings per day.

WHITE PINE.

REVIEW.—*News*, May 20th: The tramway is now in successful operation, running day and night, transporting from the Ward Beecher mine to the International mill about 125 tons of ore per day. The machinery for the steam hoisting works of the Beecher is on the road. At the tramway station of the Beecher 30 men are employed, on the night and day shifts, in breaking down the ore from the immense dumps, and sacking and shipping it. All over Chloride Flat and in the vicinity of the South Aurora, a busy scene is presented, men being at work on nearly ever location. Recent developments show that there is an immense quantity of lowgrade ore on Chloride and Pogonip Flats and in the immediate vicinity; and work on several mines, which have been idle for some time, has been resumed with vigor.

ITEMS.—Ward Beecher hoists daily from the Autumn shaft 40 tons of ore worth \$70. per ton. Same amount of good ore from the Buchanan shaft... North Aurora is now in a large body of ore. As soon as

track and platform are completed, will ship ore by tramway to mill. North Iceberg has out 5 tons worth \$160. per ton. Eberhardt ships 20 tons daily to International mill by tramway. It is found that the main body of ore in South Aurora has not yet been worked. Working 100 men and shipping ore by team to Stanford mill. Original H. Treasore works 40 men—all they can get. Sorting ore for shipment. Ward Beecher Consolidated hoists 18 tons \$55-oro daily. Chloride Flat Co. ships 30 tons daily to Stanford mill. Silver Wave will shortly commence shipping. Virginia is shipping ore to Big Smoky mill. Of the base metal mines, Trench has 30 tons reducing at mill which gives \$600 pulp assay. Now in body of ore 5 feet thick. Crown Point, on Bullion Hill, has struck a magnificent body of high-grade base ore.

OUTSIDE DISTRICTS.—A lot of Tem Pinte ore worked \$404 at Big Smoky mill. A lot from the Pago and Corwin mine, Secret Canyon, worked \$799. A lot from the Allen mine, Kern District, went \$263. The machinery for the Troy mill is all on the road.

MILLS, ETC.—The mills running are Big Smoky, 20 stamps; Stanford 30; International, 60; Oasis, 10. The Manhattan and Dayton are repairing. Alsop furnace is running steadily on Imperial ore.

Arizona.

BRADSHAW.—Prescott *Miner*, May 12th: At last accounts the original Tiger Co.'s shaft was down 35 feet, at which depth the vein of black sulphurets of silver was all of three feet thick, and careful as Captain Fleeson is, he has asserted that said sulphurets will pay \$8,000 to the ton. Water was seeping in very fast. No side walls were visible, although the shaft is pretty wide; nothing but ore on every hand, and all of it rich. Riggs & Co., owners of the 2d Extension South, on the Tiger, had penetrated to a depth of 25 feet in their new shaft, which is 40 feet from a point where their lode is fully 16 feet thick. As soon as they reach the water line, they will commence tunneling for the lode. South of them, Stuhlfeld, Knott & Co. were running an open cut in their claims and taking out plenty of rich ore, which was being assorted by Mexicans, who are, by this time, smelting it. One of the companies on the Gray Eagle lode, had 12 feet of good ore, containing free silver and black sulphurets in abundance.

OTHER DISTRICTS.—News from Big Run, Walker, Hassayampa, Weaver, and other mining districts, in this vicinity, is good. In Walker district Shelton is arastrating partially decomposed Vernon ore that will pay \$1,000 to the ton. The Thunderbolt mill was at work on silver ore from the Davis mine, Hassayampa district. Uncle Pilly Pointer has crushed about 25 tons of Pointer ore, which paid \$50 to the ton.

Colorado.

GEORGETOWN.—*Miner*, May 18th: The Baker mine is producing \$175 ore. The Kilwinning, Republican mountain, is producing very rich ore. Our mills are constantly and fully supplied with ore. The Stewart Reducing Co. have shipped since our last issue, silver hullion, \$3,824.62. The Briggs mine, is producing a good quantity of rich ore. The machinery for the Arey furnace has arrived. Several rich discoveries are noted during the week. All by poor men. Palmer & Nichols Reduction works have as much work as they can do. Total hullion shipment for the past week by this Co., is \$3,924. Work on the O. K. lode goes on, and rich mineral is found. Ore from the College lode gave 232 ozs. per ton. The Burleigh Tunnel has cut another vein further in; it is a four-foot crevice. The ore assays 65 ozs. silver per ton.

"FLOAT ORE."—Mining for float mineral, in the slide on Leavenworth mountain, continues with success. The ore has been traced to a point above the Equator lode, and it is evident that the mineral has been broken from veins which have already been cut, and are now owned by the Marshall Tunnel Co.

ENGAR.—This lode, in Spanish Bar District, has been purchased by a Kentucky Company. It is one of the largest and richest in the country.

Idaho.

BOISE COUNTY.—*World*, May 11th: Several days ago we made a flying visit across the Basin, visiting Centerville, Placerville, and Granite Creek. We found no idle men at any of the camps, and as the ditches are running full of water there is more work going on than for several years past. From a friend just down from Pioneer City we learned that water had been turned into all

the ditches, and that place appeared to be the liveliest camp in the Basin. Operations around Idaho City are carried on actively. Mr. Plowman has started hydraulics on the bar opposite the claims of Tompkins & Lanning, with all indications of its paying well. All claims having water on them are run night and day. Though the season opened rather late we will have a lively one. The Gold Hill Co.'s mill, near Quartzburg, after a run of two weeks, cleaned up \$15,000.

BULLION.—*Avalanche*, May 13th: Wells, Fargo & Co. shipped from here this week 7 bars of bullion, valued at \$17,203.

Montana.

The Bio Ditch.—*Helena Gazette*, May 15th: This and other Ten Mile ditches are affording an ample present supply for the wants of Last Chance. Ten Mile creek is very high. Miners are scarce in Last Chance gulch, and hands are in demand at all the mining claims still owned by white men. The Chinese are monopolizing most of the lower portion of the gulch.

PARK DITCH.—A large head of water is running. About half a dozen companies are sluicing in the Park, and many others are making preparations to start up in a few days. One hundred inches will be turned into Nelson Gulch this morning, where it will be used by several successive bed-rock flumes.

HIGH WATER IN CONFEDERATE GULCH.—Mr. John Moffatt, who has been bringing up a drain to his ground in Confederate gulch, informs us that all the miners in the head of the creek were this week compelled to cease operations on account of the immense amount of water. Moffatt states that in running up his drain and working out the breast this spring, he cleaned up \$3,342. D. P. Rankin, who owns No. 8, just above Mr. M., has we learn, struck some rich prospects in his ground, but was compelled to quit work.

RADERSBURG.—Cor. of same: The two mills here and the little one at Warm Springs, are pounding away on rock from the Keating, Ohio and Ironclad lodes. About two hundred men are employed in the mines. It is demonstrated that the Ironclad is one of the richest of lodes. The Keating was long since ascertained to be rich and extensive. The same is the case with the Ohio. Mr. Nave is going to build a twenty stamp mill this summer, to crush rock from the Ironclad. Everybody is busy here. Mr. Quinn, proprietor of the ditches, is furnishing 1,500 inches of water to the miners on the hars, and four or five thousand inches more are running in Crow Creek. Miners satisfied with from three to eight dollar diggings can have them here, and plenty of water for the summer.

GOLD DUST.—*Herald*, 18th: S. F. Molitor informs us that he purchased four hundred ounces yesterday, most of which was from Last Chance and Oro Fino gulches.

THE I. X. L. MILL.—We learn from Mr. J. C. Ricker that his mill will start up again in a day or two and keep running during the season. Three hundred tons of ore are already on the dump.

THIRTY DOLLARS A DAY.—Young & McDaniel after a run of thirty hours on Golden Bar, at the head of Grizzly Gulch, made a clean up, Saturday night, of twelve and a half ounces, or about \$230 in gold dust. This was the first clean-up of the season from Park Ditch water (25 inches only having been used,) and is an average of thirty dollars per day to the hand.

New Mexico.

SILVER CITY.—Cor. of Santa Fé *Post*, May 13th: Several new and rich discoveries of silver leads have been made in this vicinity. Workmen in an extension of the Legal Tender lode have struck ore of fabulous richness and yesterday similar ore was found in a new lode between this and Chloride district. Numerous small furnaces (on the Johnson plan) are being erected in every direction, and a considerable quantity of silver is being taken out daily by the Mexicans who run the only smelting furnaces now in operation. Work will soon be recommenced in the Chloride district. Among the richest lodes are the Providencia, Belknap, Adelaide, Red Rover and Gran Tesoro, as also the Siemena. About the most extensive lode yet discovered is the Princeton, situated between this district and Chloride. This lode is nearly 40 feet wide and crops out 10 feet high above the ground. The mine has not been worked as yet.

RICH ASSAY.—S. F. Molitor publishes a certificate of assay made by him of ore from the Algonquin lode on Flint Creek. The gold coin value per ton showed \$6,472.04.

Mining Stock Market.

(S. F. Stock and Exchange Board.)

SAN FRANCISCO, Thursday Eve., May 25.

The stock market has been irregular and rather weak during the past week. The most noticeable feature was the fall in Chollar-Potosi, this stock coming down to \$45 on Monday, the lowest for six months. The company has paid dividends to the amount of \$1,120,000 this year. Amador was quoted at \$305 on Friday last, a fall of \$30 from the previous quotation.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week:

Latest Prices.				
	May 18.	Highest.	Lowest.	May 25. Adv. Doc.
Alpha Cons.	130	142	125	136
Belcher	130	142	125	136
Chollar-Potosi	47	67	45	52
Crown Point	265	270	260	265
Eureka Cons.	12	14	12	12
Golden Chariot	42	44	42	44
Gold and Copper	88	93	83	91
Hale and Norcross	63	67	63	67
Ida Elmore	15	15	14	14
Imperial	54	50	50	50
Knott	87	118	87	106
Meadow Valley	15	19	16	18
Ophir	9	9	7	7
Orig. Hid. Treas.	10	11	9	10
Overman	4	4	3	3
Savage	49	51	47	49
Sierra Nevada	20	20	19	17
Yellow Jacket	85	83	83	84
Ida Elmore	50	52	50	52
Knott	87	88	87	88
Meadow Valley	15	15	14	14
Ophir	9	9	7	7
Overman	4	4	3	3
Savage	49	51	47	49
Sierra Nevada	20	20	19	17
Yellow Jacket	85	83	83	84

MINING SHAREHOLDERS' DIRECTORY—MEETINGS, ASSESSMENTS AND DIVIDENDS.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

ASSESSMENTS				
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	OF ASSESSMENT	DELINQUENT	OF ASSESSMENT
Altona G. M. Co., Nev. Co., May 28, 25c	June 26	July 17		
Belcher, G. H., April 14, \$4	May 17	June 15		
Cherokee Flat, Butte Co., April 14, \$5	May 16	June 3		
Cons. Virginia, Silver Valley, May 5, \$1	June 1	June 1		
Crown Point, G. H., April 12, \$20	May 8	May 29		
Gen. Lee, White Pine, April 21, 10c	May 29	June 20		
Gould & Curry, Va. City, May 18, \$15	June 22	July 13		
Hanscom, Del Norte Co., April 28, 5c	June 10	June 25		
Imperial, G. H., May 22, \$10	June 24	July 13		
Julia, Virginia City, March 31, \$1	May 3	May 12		
Kincaid Flat M. Co., Tuo. Co., April 27, \$2.50	May 10	May 12		
Knott, May 9, \$10	May 17	June 12		
Latawana M. Co., White Pine, May 16, 20c	June 22	July 11		
Mahogany, Owyhee Co., I. T., Mar. 23, \$2	May 1	May 29		
Mauntauick S. M. W. P., April 24, 5c	June 1	June 19		
Mina Rica, Placer County, April 23, 20c	May 30	June 20		
Meadow Valley Exp., May 1, 50c	June 12	June 3		
Neveda L. & M., May 8, 40c	June 8	July 3		
Noonday, White Pine, Nov. Apr. 10, 20c	May 15	June 17		
Overman, G. H., April 28, \$5	June 3	June 24		
Pinto M. Co., Nev., May 24, 12 1/2c	June 26	July 17		
Phoenix, Eureka, Nev., April 13, 25c	May 22	June 12		
Salamanca G. & M. Co., May 4, 35c	June 12	June 10		
Sierra Nevada, Va., April 17, \$2.50	May 22	June 10		
Sierra Iron Co., May 17, 60c	June 25	July 20		
Silver Sprout, Mayo Co., March 15, \$6.25	May 1	June 5		
Succor, Gold Hill, May 6, \$1	June 8	June 30		
Tallulah, Nevada, Mar. 14, \$1	Apr. 25	May 23		
Taylor M. & M. Co., El Dorado, Apr. 14, 25c	May 24	June 12		
Teumneh, Calaveras Co., April 11, \$3	May 19	June 6		
Yosemite, Lander Co., Nev., April 22, \$1	May 22	June 19		

MEETINGS TO BE HELD.				
Mohawk & Montreal M. Co.	Special Meeting, June 27			
Bromide Tunnel	Annual Meeting, June 6			
Buckeye	Annual Meeting, June 6			
Crown Point	Annual Meeting, June 6			
Highland	Annual Meeting, June 6			
Santa S. M. Co.	Special Meeting, June 20			
Mammoth	Annual Meeting, June 6			
Wheeler	Annual Meeting, June 6			
Yosemite	Annual Meeting, June 5			

LATEST DIVIDENDS—(Within Three Months)

Amador, \$4	Payable May 10
Black Diamond, 1/2 per cent.	Payable May 10
Chollar-Potosi, 1/2 per cent.	Payable May 10
Chollar-Potosi, 1/2 per cent.	Payable May 10
Eureka, div., 75c	Payable May 6
Eureka Cons., 75c	Payable April 20
Golden Chariot, div., \$7	Payable March 10
Hale & Norcross, div., \$5	Payable April 10
Meadow Valley, 1 per cent.	Payable Feb. 9
Natoma, div., 1 per cent.	Payable May 10
North Star, \$3	Payable May 10
Redington, 1 per cent.	Payable May 5
Sierra Nevada, div., \$1	Payable Jan. 16
Yellow Jacket, \$2.50	Payable May 10

SAN FRANCISCO RETAIL MARKET RATES.				
MISCELLANEOUS.				
Butter, Cal. fr. B.	35	@ 45	Wool, new, new	40 @ 90
Pickled, Cal. B.	35	@ 45	Second-hand do.	67 @ 90
do Oregon, B.	35	@ 45	Wheat, sds, 2x3s	13 1/2 @ 14
Honey, # B.	25	@ 30	Potato G's Bags	22 @ 25
Cheese, # B.	25	@ 30	Second-hand do.	16 @ 20
Eggs, per doz.	30	@ 35	Deer Skins, w. on	15 @ 22
Lard, # B.	18	@ 20	Sheep skins, w. on	50 @ 75
Sauces, # B.	12	@ 15	Shoop skins, plain	12 1/2 @ 25
Brown, do. # B.	10	@ 13	Shoop skins, plain	12 1/2 @ 25
Beef, do. # B.	10	@ 13	Shoop skins, plain	12 1/2 @ 25
Sugar, Map. B.	20	@ 25	Shoop skins, plain	12 1/2 @ 25
Plum, dried, B.	15	@ 20	Shoop skins, plain	12 1/2 @ 25
Peaches, dried, B.	15	@ 20	Shoop skins, plain	12 1/2 @ 25

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, May 26, 1871.

IRON.—Duty: Pig, \$7 per ton; Railroad, \$6 per 100 lbs. Bar, 1 1/2 to 2 1/2; Sheet, 1 1/2 to 2 1/2; Galvanized, 1 1/2 to 2 1/2; Scotch and English Pig Iron, \$25 to \$30; White Pig, \$20 to \$25; Refined Bar, good assortment, \$10 to \$15; Boiler, No. 1 to 4, \$10 to \$15; Plate, No. 5 to 8, \$10 to \$15; Sheet, No. 10 to 12, \$10 to \$15; Sheet, No. 14 to 20, \$10 to \$15; Sheet, No. 21 to 27, \$10 to \$15; CORN.—Duty: Sheathing, 3/4c # B; Pig and Bar, 2c # B.

Sheathing, # B. 20 @ 25
Sheathing, Yellow. 10 @ 11
Composition Yellow. 21 @ 22
Composition Bolts. 21 @ 22
TIN PLATES.—Duty: 12 lb. ad. valorem. Plates, 1 lb Charcoal. 10 00 10 50
Roofing Plates. 10 00 10 50
Banco Tin, Slabs, # B. 42 @ 42
Sheet, English Cast Steel, # B. 15 @ 15
QUICKSILVER.—# B. 60 @ 60
LEAD.—Pig, # B. 9 @ 9
Pipe, # B. 10 @ 10
Bar, # B. 10 @ 10
ZINC.—Sheet, # B. 9 1/2 @ 9 1/2
Bolt, # B. 25 @ 25
Borax, crude. 5 @ 5

San Francisco Retail Market Rates.

(S. F. Stock and Exchange Board.)

SAN FRANCISCO, Thursday Eve., May 25.

The stock market has been irregular and rather weak during the past week. The most noticeable feature was the fall in Chollar-Potosi, this stock coming down to \$45 on Monday, the lowest for six months. The company has paid dividends to the amount of \$1,120,000 this year. Amador was quoted at \$305 on Friday last, a fall of \$30 from the previous quotation.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week:

Latest Prices.				
	May 18.	Highest.	Lowest.	May 25. Adv. Doc.
Alpha Cons.	130	142	125	136
Belcher	130	142	125	136
Chollar-Potosi	47	67	45	52
Crown Point	265	270	260	265
Eureka Cons.	12	14	12	12
Golden Chariot	42	44	42	44
Gold and Copper	88	93	83	91
Hale and Norcross	63	67	63	67
Ida Elmore	15	15	14	14
Imperial	54	50	50	50
Knott	87	118	87	106
Meadow Valley	15	19	16	18
Ophir	9	9	7	7
Orig. Hid. Treas.	10	11	9	10
Overman	4	4	3	3
Savage	49	51	47	49
Sierra Nevada	20	20	19	17
Yellow Jacket	85	83	83	84
Ida Elmore	50	52	50	52
Knott	87	88	87	88
Meadow Valley	15	15	14	14
Ophir	9	9	7	7
Overman	4	4	3	3
Savage	49	51	47	49
Sierra Nevada	20	20	19	17
Yellow Jacket	85	83	83	84

MINING SHAREHOLDERS' DIRECTORY—MEETINGS, ASSESSMENTS AND DIVIDENDS.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

Wild, do. # dzl	15	(22) 20	Herring, fresh.		
Beef, tender, lb.	15	(22) 38	Smoked, per 100	61	00
Sirloin and rib	15	(20) 25	Tomcod, lb.	61	00
Corned, do. lb.	10	(22) 12	Terrapin, # doz.	00	00
Smoked, do. lb.	15	(22) 15	Mackrook, p. k. ea.		
Pork, rib, etc., lb.	12	(25) 15	Sea Bass, # lb.		
Chops, do. # lb.	12	(22) 15	Halibut,	62	00
Veal, # lb.	15	(22) 20	Turgeon,	1	00
Mutton chops, #	12 1/2	(22) 15	Oysters, # 100, ..	41	00
Leg, # lb.	12 1/2	(22) 15	Chesep. # doz.	41	00
Tongues, beef, ea.	6	75	Turbot,	40	00
			Orzels # doz.	40	00
			Shell, Shell,	37	00
			Shrimps,	10	12

* Per lb. † Per dozen. ‡ Per gallon.

New York Metal Market.

[CORRESPONDING WEEKLY FROM THE AMERICAN ARTISAN]

NEW YORK CITY, Saturday, May 20, 1871.

IRON.

Pig, Scotch, No. 1 (cash), per ton.....	\$31 00	@	35 00
Pig, American, No. 1 (cash).....	32 00	@	33 00
Pig, American, No. 2.....	30 00	@	31 00
Swedish, ordinary sides.....	110	@	120
Common.....	72 50	@	77 50
Refined.....	80 00	@	80 00
Pods.....	35 00	@	41 00
Horse-shoe, ordinary sides.....	75	@	80
Hoop.....	100 00	@	100 00
Scroll.....	97 50	@	100 00
Double-sheet, warranted.....	—	—	—
Spring.....	—	—	—
Tire.....	7 1/2	@	8

STEEL.

Bars, best cast, warranted, # lb.....	18	@	19 1/2
Sheet, best cast.....	19	@	20
Sheet, second quality.....	18	@	19
Sheet, third quality.....	17	@	18
Saw-plates, circular.....	23	@	24
Double-sheet, warranted.....	18	@	19
Single-sheet.....	17	@	18
Machinery & Co. (cast bars).....	15	@	16
Machinery, round.....	12	@	13
German, best.....	10	@	11
German, good.....	9	@	10
German, eagle.....	8	@	9
Blister, warranted.....	10	@	11
Blister, common.....	9	@	10
Jessop & Sons', common.....	7	@	8

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING MAY 9TH.

MANUFACTURE OF ILLUMINATING GAS.—Samuel Hevner, San Francisco, Cal.

BUCKLE.—John F. Martin, Harrisburg, Oregon.

WATER-WHEEL GATE.—Perry W. Davis and Dennis D. Burnell, Portland, Oregon.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency the following are worthy of notice.

IMPROVED SAFETY FUSE.

R. Uren, Santa Cruz, Cal. The object of this invention is to produce a safety fuse which can be manufactured at a less cost than the ordinary fuse heretofore made. The article in question is composed of only two layers of material, instead of three. Its manufacture is accomplished by means of a machine previously patented by Mr. Uren and others. In the ordinary method of manufacture, it is necessary, while twisting the first or main rope (inside of which the powder is confined), to twine around it, in an opposite direction, one or more strands or yarns, called counter yarns, in order that the rope shall not untwist when taken from the drum upon which it is wound in preparing and covering it with the tapes. With the machine above mentioned, it is possible to dispense with winding with the counter yarns, and thus the expense of this operation and material are saved, while an equally durable and effective fuse is obtained.

CARBURETTER FOR AIR.

L. Marks, S. F. This machine consists of a vessel, to the lower portion of which is fixed a series of shallow, oppositely-inclined boxes, connecting with one another. Gasoline, or other suitable oil, is placed in the upper box and immediately fills the inclined series. Air is driven into the lower box and forced to follow the inclined boxes, through the gasoline, up into the upper tank, whence it is drawn off for use, having become saturated with the vapors during its passage over the oil. The device is cheap and simple, occupies but little space, and is said to act very well in preparing the air for illuminating purposes.

GARDEN SPRINKLER.

J. I. Spear, S. F. This very neat and effective sprinkler has a hollow annular rim, of triangular cross-section, the upper face of which is rounded from the inner to the outer edge, and perforated with numerous small holes in the manner of any ordinary sprinkler. To the lower side of the rim, pipes or hollow arms are secured at equal distances, and converge to a central hollow boss which is attached to the hose by any suitable means. Any number of these arms may be used, or two V-shaped rings, one placed inside of the other with a space between them, may be used to connect the boss with the rim. The sprinkler stands in a vertical position

when in use, and throws a spray or shower of water in all directions, evenly wetting the ground in every part, and, while acting much more effectively than the common sprinkler, forming a very neat ornament.

Editorial Notes Eastward.—3.

As we continue on, we are continually catching ever varied and beautiful views of the American River, which twists and turns and tosses through the roughest and the wildest and the grandest of places. Now it is in plain sight below us, and now a turn or an intervening rise of the ground conceals it, as we pass on our serpentine path, over a ledge on the face of the mountain or into a low cut in its sides.



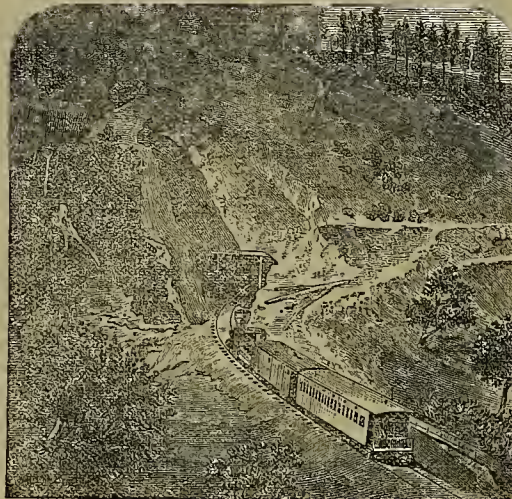
GIANT'S GAP, American River.
208 miles from San Francisco.

Everywhere are rough rocks, high mountains, deep ravines and green trees.

With a shriek we dash into darkness,—into the first tunnel we have yet met, which is burrowed through Grizzly Hill, aptly named. We pass through darkness and smoke, and before we have well accustomed our eyes to the changed condition, we are again in daylight. We come to Blue Cañon, blue with the light smoke rising from the many fires of the hardy

conqueror of Nature, and the deepest love of Nature, who could appreciate the scene in the days of the stage coach and of the prairie schooner.

We are now getting well up in the world. At Cape Horn we were thirty-five hundred feet above the level of the sea. At Emigrant Gap Ridge we were nineteen hundred feet higher, having risen this distance in the space of eighteen miles. We are rising up into regular Alpine scenery, and soon we shall be at a height where the snow comes in heavy drifts, and where the greatest ingenuity and skill of man is required to contend against the immense obstacles which Nature's forces present to his progress. But man shows himself the



WEST PORTAL TUNNEL No. 1.
215 miles from San Francisco—Altitude 4,574 feet.

conqueror of Nature, and comes out victorious in all the contests.

San Gorgonio Pass, San Bernardino County.

A correspondent of the Los Angeles Star says:—It (the San Gorgonio Pass) is an immense plain, ten to fifteen miles wide, extending before us further than the eye can reach. We had entertained the idea that this famous pass was a narrow gorge in the mountain, hence the scene which

of high cultivation, if water were supplied.

About three miles from where we stood, a fine stream of water rises in the hills, and after supplying Moore's ranch, makes its way out upon the desert. Still farther on, another stream irrigates an Indian settlement, the Potrero, which yields abundantly to the culture of the occupants. This is the last vestige of vegetation; all beyond is a sandy waste, down to the White Water River, a distance of some twenty miles, over which we saw a team slowly dragging its weary way, and over which the stage from Arizona had just passed. Passing down the plain to where the foot-hills run out on the desert, and turning towards the south, the Cabeson valley opens up, from which, to the Colorado, at Fort Yuma, there is not a hill or obstruction of any kind, and so gentle a descent, that in riding over it one cannot perceive the inclination. This is the nearest and cheapest route for the construction of the southern railway, as the surveys will, no doubt, eventually prove. It was on this desert the people of San Bernardino some years since sunk the wells which proved so useful to the immigrants.

Passing down this desert from Chapin's, about twenty miles, and leading in a northeasterly direction, the Morongo Pass opens up, which leads to the Colorado at Fort Mojave, or the Needles, the route by which it is proposed the thirty-fifth parallel road should enter California. This is another open plain, and offers the greatest facility for railway construction.

We may notice certain projected improvements by which it is intended to utilize the White Water River, by leading it from its desert course over the plains of the San Gorgonio Pass. This river rises in the San Bernardino mountain, near to the source of Mill Creek, (we think,) which runs west, while the White Water runs easterly, useless course, and loses itself among the desert sands of the Cabeson Valley. It is proposed to take out this water, and by ditch and flume, for some nine or ten miles, making use of natural water courses, bring it upon the lands near Dr. Smith's, and there found a colony.

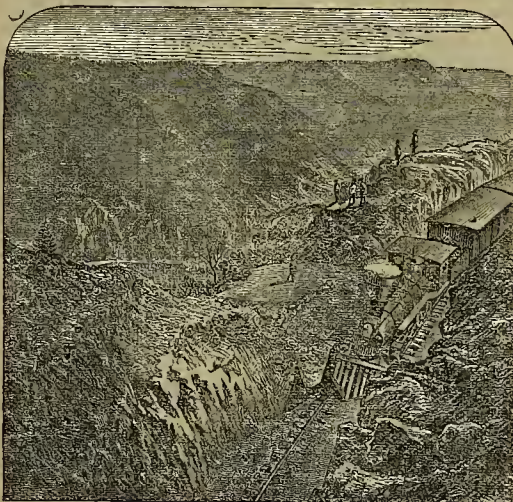
The idea is a grand one, but it is as yet in an undeveloped condition, but the preliminary surveys are being made to test the practicability of the plan.

The oldest stove probably in the United States, says *Appleton's Journal*, is the one which warms the capitol at Richmond, in Virginia. It was made in England in 1770, and warmed the House of Burgesses for sixty years, before it was removed to its present location, where it has been for thirty years. It has survived three British monarchs; has been contemporaneous with four kingly monarchies, two republics, and two imperial governments in France. The great American republic has been torn by internal strife,

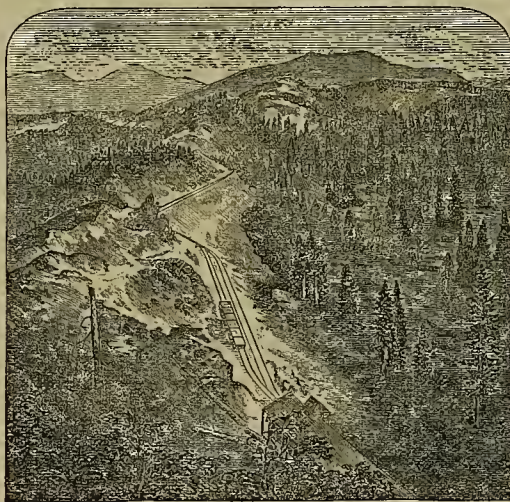
the breach partly healed, and still the old stove remains the same, unmoved in the midst of all.

ARTESIAN WELLS.—A Watsonville correspondent of the *Alta* gives the following as the cost of sinking artesian wells at that place. "Boring,—first 50 feet, 50 cents per foot; second 50 feet, \$1; third 50 feet, \$1.50; fourth 50 feet, \$2.; and so on in proportion to the depth. Pipe for the well costs 75 cents per foot. A well 150 feet deep will cost, including incidental expenses, such as breakage in pipe, etc., about \$275."

OXFORD UNIVERSITY is said to have had 7,000 students during the last term.



AMERICAN RIVER.
209 miles from San Francisco—Altitude 3,654 feet.



EMIGRANT GAP RIDGE.
222 miles from San Francisco—Altitude 5,574 feet.

wood-cutters, who are engaged in getting lumber for the varied wants of the coast. In the vicinity are numerous mills, which fashion into proper shape the huge trunks, and prepare them for the builder.

Soon we run along along an extended ridge, Emigrant Gap Ridge, so called from the fact that here the road traversed by the old emigrants crossed the divide. This road we shall often view again on our way, and it will recall the weariness and vexation of flesh of former days. The view here is very fine, and the ease of traveling now enables the laziest of mankind to enjoy it. But he must have been possessed of the strongest of limbs, the most indom-

opened on us, and expanded in grandeur as we proceeded, took us wholly by surprise. We saw before us a vast extent of country, apparently as flat as a table, wide as the eye could reach, bounded on each side by a lofty range of hills, which, on the right, run up to the San Gorgonio Mountain, and receding toward the desert into low sandhills, as did also the hills on the left. On our left, going out, we pass the ranch of Dr. Edgar, known as the San Gorgonio; next to it the ranch of Dr. Smith, said to be on the divide of the pass; and, three miles further on, the Chapin ranch. Here, ascending a steep hill, with a field-glass, we examined the country down as far as the valley of the White Water, which presented the same characteristics of a dead level plain, barren as the desert, but, as were informed, capable

POPULAR LECTURES.

The Study of Modern Languages.

[Prof. Paul Pioda before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Fifth Series. Reported expressly for the PRESS.]

LECT II. May 20.—The Professor commenced his lecture by remarking on the universal and imperative demand for the introduction into our public schools of instruction in the modern languages. That this demand was founded on the best of grounds, his previous lecture had tended to show. To-night he was to remark on the best methods of conveying that instruction.

It is only within a few years that this study has been introduced into the grammar schools of the principal cities of the Union. Before this, it was treated as a sort of practical superfluity, or rather as an exotic. But in this short time much progress has been made in the methods of teaching. To Manesca belongs the credit of having introduced a new and improved method, which has been followed to a greater or less extent by all subsequent grammarians. But Manesca was all practice, and his predecessors were all theory. The true way is to combine theory and practice properly.

Now the manner of acquiring knowledge varies with age, character, etc. An adult must be taught in a different way from a child. A man of mature age is able to grasp rules and theories, but as habit is the greatest enemy in the acquisition of the phonetic element of a language, he cannot expect to get the accurate pronunciation of a native. Certainly not, unless he is willing to devote a very great amount of time to the study. With adults, the most essential condition of success consists in the personal activity of the students themselves. The students must work hard, while the teacher is to be used only to guide, explain and stimulate.

Prof. Pioda's Method for Children.

With children, it is different. Here theory must give way to practice, books to personal instruction. Place a collection of rules and theories before a child, and the only result will be, if any, a torn and mutilated book. A child is helpless, dependent in everything; he must be taught orally, by objects, talks, little histories, which will interest it; and for short periods at a time.

Prof. Pioda elaborated at length his system for schools. He objected to the one-hour system (giving lessons to children one hour at a time, twice or thrice a week) as valueless. Arithmetic, geography and all other branches of juvenile instruction can be learned as well in one language as another. Therefore let there be primary schools where all the instruction is given in one foreign language, others in which it is given in another. A young child can be sent to a school for two years where French, for instance, is spoken, where all the instruction is given in this language. Then, for a couple of years, to a German school, where, however, he continues his French by the one-hour system. Or he may learn German first, and then French. This is only the general idea of the Professor's method. By it children will have acquired a foundation in the languages which will be firm and lasting, and on which the superstructure may be elaborated hereafter.

There is no fear that an American child will suffer as to his mother tongue by such a method. All the time that he is out of school, he will hear English spoken, and he will grow in this language equally with his pace in the others. There is one school on this coast where this method is pursued. The Lafayette Grammar School at Oakland, has a class of 40 or 50 children who are taught the common branches pursued in such a school in French. The Professor had requested prominent teachers and others to examine these children in English, and they reported them as sound in this language as the children in the schools where English only is taught.

The Professor spoke at length on the different points of the matter, upholding and explaining fully. This lecture terminates his series. The next three lectures will be delivered by Prof. W. F. Welcker on,—1st, General Considerations of the Science of Mathematics; 2d, Descriptive Geometry; 3d, Historical Sketch of Small Arms.

California State Fair for 1871.

The State Fair for this year commences at Sacramento on the 18th, and ends on the 23d of September. The Board of Agriculture are determined that no exertions on their part shall be wanting to make it in every department worthy of the State.

The premium list is a great improvement over any that has heretofore been issued by the Society, and decidedly more liberal than the average of premium lists offered by other States.

Over \$20,000 cash is offered in specific premiums, and under the clause, that "liberal premiums, will be given for all worthy articles exhibited not named in the list," this sum is largely increased. The Society will keep this promise good, so that any parties who may have any articles they consider worthy are invited to exhibit, and will be awarded just as valuable a premium if found worthy, as if a premium had been specially named for it. This clause will cover all new inventions and discoveries made after the issuance of the list and before the Fair, and is a direct encouragement to inventors.

We congratulate the mechanics of the State that the highest premium affixed in the entire list is in the Mechanical Department; and we extend equal congratulations to the agriculturists that that premium is offered for an agricultural machine—\$200 for the steam plow. The premiums for plows are numerous and liberal, and will be more specially noticed in our next issue.

The next highest premium is a silver pitcher worth \$150 for the best stallion of any age. There are five \$100 cash premiums, one for the best mare of any age; one for the best bull; one for the best thoroughbred sire with not less than ten of his colts; one for the best herd of cattle of any one breed, not less than ten, owned by any one person; and one for the best general display of fruit, embracing best and greatest varieties. In the department of fruits there are three \$40-cash premiums, one for apples, one for pears, and one for grapes. In the same department there are seven \$20-cash premiums, and ten \$10-cash premiums. The fine arts are well cared for in the list, there being four \$50 and four \$20-cash premiums offered in this department, besides many smaller cash premiums, and a large number of diplomas. In the floral exhibition, \$100 is divided into three premiums:—For best miniature flower garden; for best display of cut, and for the best display of growing flowers. A very large number of premiums is offered for vegetables, the largest being \$50 for the best and greatest variety of vegetables raised by any one exhibitor.

For the exhibition of wines of different kinds, \$200 is appropriated, and \$60 for sugars made of beets, cane and melons; \$50 is offered for the best exhibition of the silk business, and \$50 for the greatest number of useful forest trees planted during the year in permanent plantation.

For the best exhibitions of wooden ware, \$50 will be given, and \$20 each for the best grand, square and bonoir pianos; \$50 each for the best display of woolen and cotton goods, and \$20 for the best five yards of silk cloth, is offered; \$50 is proposed for the display of agricultural machinery; \$50 for the best horse; \$50 for the best steam engine, and \$50 for the best exhibition of general machinery. For the best two-horse family carriage \$30 will be given; for the best one-horse \$25, and \$20 for the best buggy, \$15 for the best farm wagon, and \$15 for the best trotting wagon.

We have named the above premiums to show the fairness with which all classes of exhibitors are treated in the distribution of favors. No industry has been overlooked, and none can complain of a want of due consideration.

ACCURATE SURVEYING.—The U. S. R. R. and M. Reg. says that, in the Hartz Mountain mines of Germany, surveying of the most difficult kind, through crooked underground ways, was carried out, on a certain occasion, for nearly five miles and came out exact to within an inch and a quarter.

GOOD HEALTH.

Effects of Colors on Health.

From several years' observation in rooms of various sizes, used as manufacturing rooms, and occupied by females for twelve hours per day, I found that the workers who occupied those rooms which had large windows with large panes of glass in the four sides of the room, so that the sun's rays penetrated through the room during the whole day, were much more healthy than the workers who occupied rooms lighted through very small panes of glass. I observed another very singular fact, viz: that the workers who occupied one room were very cheerful and healthy, while the occupants of another similar room, who were employed on the same kind of work, were all inclined to melancholy, and complained of pain in the forehead and eyes, and were often ill and unable to work. Upon examining the rooms in question, I found they were both equally well ventilated and lighted. I could not discover anything in the draining of the premises that could effect the one room any more than the other; but I observed that the room occupied by the healthy workers was wholly white-washed, and the room occupied by the melancholy workers was colored with yellow ochre.

I had the yellow ochre all washed off, and the ceiling and walls whitewashed. After making this discovery I extended my observation to a number of small rooms and garrets, and found, without exception, that the occupants of the white rooms were much more healthy than the occupants of the yellow or buff colored rooms; and I succeeded in inducing occupants of the yellow rooms to change the color for white-wash. I always found a corresponding improvement in the health and spirits of the occupants. From these observations, I would respectfully drop a hint to the authorities of schools, asylums and hospitals, to eschew yellow buff, or anything approaching to yellow, as the grand color of the interior of their buildings.

The following are some of the things not generally appreciated about a house: 1. The benefit of thorough drainage and water supply. 2. The benefit of good heating and ventilation. 3. The benefits of proper color.—*Cor. of the Builder.*

To the above may be added, facilities for admission of light.—*ED. PRESS.*

HARD AND SOFT WATER.—Dr. Letheby considers moderately hard water better suited for drinking than that which is very soft—an opinion which is confirmed by that of the French authorities, who took the Paris water from chalk districts instead of from sandy strata. He also stated that a larger percentage of French conscripts are rejected from soft-water districts than from neighborhoods supplied with hard water, and that English towns supplied with water of more than ten degrees of hardness have a mortality of four per one thousand less than those whose inhabitants use soft water.

REMEDY FOR THE TOOTHACHE.—The following application is said to be a prompt and generally efficient remedy for toothache, or neuralgic affections arising from teeth in any state of decay:—Saturate a small bit of clean cotton with a strong solution of ammonia, and apply it immediately to the affected tooth. The pleasing contrast instantaneously produced in some cases causes a fit of laughter, although a moment previous extreme suffering and anguish prevailed. A correspondent of the *Scientific American* says he has used the remedy for over one year, and obtained sufficient proof of valuable results to warrant its publication.

DISINFECTANT.—Sick and other rooms may be promptly and readily disinfected by placing a portion of carbolic acid in a porcelain dish, and float it in a larger vessel of hot water, to produce a more rapid evaporation. The disagreeable odor of carbolic acid is not at all difficult to disguise. An aromatic or perfumed carbolic acid is prepared by the admixture of oil of lavender, etc., which diffuses an agreeable odor of incense, but leaves the virtues of the acid unimpaired.

Eating Without Appetite.

It is wrong to eat without appetite, for it shows there is no gastric juice in the stomach, and that nature does not need food, and there not being any fluid to receive and act upon it, it would remain there to putrefy—the very thought of which should be sufficient to deter any man from eating without an appetite, for the remainder of his life. If a tonic is taken to whet

the appetite, it is a mistaken course; for its only result is to cause one to eat more, when already an amount has been eaten beyond what the gastric juice supplied has been able to prepare. The object to be obtained is a larger supply of gastric juice, not of a larger supply of food; and what ever fails to accomplish that essential object fails to have any efficiency toward the cure of dyspeptic disease; and as the fermentation of gastric juice is directly proportioned to the wear and waste of the system, which it is to be the means of supplying, and this wear and waste can only take place as the result of exercise, the point is reached again that the efficient remedy for dyspepsia is work—out door work—beneficial and successful in direct proportion as it is agreeable, interesting and profitable.

Comfort For Tea Drinkers.

In the life of most persons a period arrives when the stomach no longer digests enough of the ordinary elements of food to make up for the natural daily waste of bodily substances. The size and weight of the body, therefore, begins to diminish more or less perceptibly. At this time tea comes in as a medicine to arrest the waste, to keep the body from falling away too fast, and thus to enable the energetic powers of digestion still to supply as much as is needed to repair the wear and tear of the solid tissues. No wonder, therefore, that tea should be a favorite, on the one hand with the poor, whose supply of substantial food is scanty, and on the other with the aged and infirm, especially of the feeble sex, whose powers of digestion and whose bodily substances have together begun to fail. Nor is it surprising that the aged female, who has barely enough of weekly income to buy what are called the common necessities of life, should yet spend a portion for her ounce of tea. She can live as well on less common food, when she takes her tea along with it; she feels lighter, at the same time more cheerful and fitter for her work, because of the indulgence.

Influence of Climate on Man.

It is not generally known, but it is nevertheless true, that a pure, moderately dry air generally produces great mental brightness, especially with full blooded persons. A cloudy and moist atmosphere, on the other hand produces mental relaxation, and with many, melancholy. This explains why suicides so often happen when the sky is overcast. The depressed mental state is thus further enhanced. Villeneuve reports that of every ten suicides which were committed in Paris during two years, nine took place in the rainy season. The influence of the climate is also well exemplified in the case of mountaineers. They are quicker more active and excitable. The Swiss naturalist, Desor, in a recent essay, describes the climate of North America as very changeable and dry. After having explained a number of phenomena produced by the climate in general, depicts its influence upon the inhabitant of this country. He derives from the climate his activity, acuteness, his tall stature, his eagerness for gain, his practical talent, and his love of adventure. It is also well known that the inhabitants under a preponderating clear sky possess more talent for art, while those under a gloomy sky have more propensity for speculation and thought.

TAKE CARE OF THE EYES.—Looking into a bright fire, especially a coal fire, is very injurious to the eyes. Looking at molten iron will soon destroy the sight. Reading in the twilight is injurious to the eyes, as they are obliged to make great exertion. Reading or sewing with a side light injures the eyes, as both eyes should be exposed to an equal degree of light. The reason is, the sympathy between the eyes is so great, that if the pupil of one is dilated by being kept partially in the shade, the one that is most exposed cannot contract itself sufficiently for protection, and will ultimately be injured. Those who wish to preserve their sight, should preserve their general health by correct habits, and give their eyes just work enough, with a due degree of light.

LEIBIG ON APPLES.—Dr Leibig says on apples: "The importance of apples as food has not hitherto been sufficiently estimated and understood. Besides contributing a large proportion of engar, mucilage and other nutritive compounds in the form of food, they contain such a fine combination of vegetable acids, extractive substances and aromatic principle as to act powerfully in the capacity of refrigerents, tonics and antiseptics; and when freely used at the season of ripeness by rural laborers and others they probably maintain and strengthen the power of productive labor."

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,
W. B. EWER, JNO. L. ROONE.

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4; six months, \$2.50; three months, \$1.25. Clubs of ten names or more \$3 each per annum.

San Francisco:

Saturday Morning, May 27, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, May 25, 1871. Legal Tenders buying @90; selling @90½. Gold in New York to-day 111½.

Table of Contents.

Sash Tightener, Ill.; Baking by Machinery, Ill.; Combined Key Ring and Door Fastener, Ill.	321
MECHANICAL PROGRESS.—American Manufacture of Small Arms; New Turbine; Telegraph Cables; Over-Testing Iron Work; Utilizing Gas; Coating Steel with Iron; Planing Valve-Seats.	322
SCIENTIFIC PROGRESS.—Crystals in Plants; Electro-Tonic State; N. Y. Anthropological Institute; Parasites; Right-Handedness; Colossal Sea-Weed; Heat and Light.	322
Tea and Coffee in Cal.; Krupp's Steel Works; Mexican Mining Words; Gilpin Co., Colorado; Railroad Lands, Southern Pacific R. R.	323
MINING SUMMARY; Shareholders' Directory; Mining Stocks; Market Rates.	324, 325
List of Patents; Notices of Patents; Editorial Notes Eastward, Ill.; San Geronimo Pass; Artesian Wells.	326
Study of Modern Languages; Cal. State Fair; Effect of Colors on Health; Tea Drinking; Climatic Influences.	327
Notices to Correspondents; New Road Steamer; New Pacific Railroad; New Palace Car.	328
Crow of New England, Ill.; Boring for Water on Comstock Lode; Coal Discovery at Elko; Reducing Chloride of Silver.	329
Chemistry of the Kitchen, Ill.; Household Sins; Receipts; Mechanical Hints.	330
Machine for Screwed Boots and Shoes, Ill.; Patents for Placer Claims; Mineral and Agricultural Lands.	332

Notices to Correspondents.

ROLLER SKATES. C. H. W. Columbia.—For the right to use the Boone patent C-spring skate, apply to Underhill Boynton, General Agent, at No. 105 Montgomery street, San Francisco, who will also receive orders for skates.

THE SAN JOAQUIN IRRIGATION SCHEME. The gentlemen who have projected this important enterprise are evidently in earnest, and have already placed three surveying parties in the field. Two of them have started from Millerton on the San Joaquin river. One will run a line north and the other south from that point. The other party starts from Kern river and will survey the line along the base of the Coast Range on the west border of the valley.

The projectors express confidence that the crop of 1873, in the San Joaquin Valley, will be raised by aid of these improvements, and that thereafter the people of that now parched region will be in a position to laugh at drouth, and become the most successful and independent farmers in the state.

SMELTING WORKS IN COLORADO.—The Colorado Miner notices a project for erecting smelting works, somewhere near Golden (we presume). It justly advises the parties to invest a sufficiently large capital and not to put in dribbles.

THE DIAMOND FIELDS of South Africa, according to the latest accounts, are yielding largely. Diamonds are reported as having been found in large numbers and of great value,—from \$50,000 downwards. Disputes as to ownership of lands are also reported as frequent.

A USEFUL DEVICE, according to the Valjejo Chronicle, has been put in operation in some parts of Solano where the grain and grass are very short. An apron is fitted under the sickle of the mower which catches all the grass, and when full is dumped into piles. Grass and grain not over three inches in height are thus secured, in some cases at the rate of a ton to an acre. This device might probably be found useful in other parts of the State, where the drouth has stunted grain and grass.

A New Road Steamer.

That we have not made more extended mention of the road steamer which has been in the course of construction in this city, is due simply to the fact that we wished to have some tangible evidence of its powers and to be satisfied from personal observation as to its capabilities. Having now had this evidence, and being satisfied that it can do what we were told it was capable of, from seeing it at work, we are better prepared to speak of its merits.

The "American Overland Steamer," as it is called, is the invention of Oliver Hyde & Son, of this city. The machine was built at the Ætna Foundry, and has been tested a couple of times,—the last time on the 20th inst., when it acted in the most satisfactory manner. It is in many respects similar to the Thompson steamer, yet differs therefrom in several important points, in which it appears to be an improvement on its predecessor.

The steamer weighs 20,500 pounds. The boiler is four feet in diameter and six feet high, with 180 tubes, furnishing steam for two engines, with link motion and variable cut-off, running about 200 revolutions per minute, reduced by the gear 16 times, and giving the steamer a speed of some three miles per hour. It has a very neat donkey steam pump, invented by Mr. W. W. Hanscom of the Ætna Foundry, which is so arranged that it can be used for filling the tanks from wells, springs or creeks. The steering apparatus is simple and effective, a hand wheel operating on a segment of a screw gear, on the top of the pintel of the guiding wheel.

The most noticeable improvement is in the construction of the rubber tires of the wheels. In place of the rubber band of the Thompson steamer, there is a series of rubber rolls placed side by side across the face of the wheel. The triangular spaces between the inner parts of these rolls are filled with iron wedges, bolted to the metallic rim, and the corresponding spaces between the outer parts are filled by similar wedges, each one bolted to an iron bar somewhat similar to the protecting bars on the Thompson steamer.

The construction and fastening of these bars form another important point. They are bent parallel to the sides of the wheel, so as to enclose the tire on three sides, and thence, near the ends, bent again at right angles, forming a sort of lug which can play freely on the inside of a metal ring, of somewhat less than the diameter of the wheel, which is firmly fastened to the wheel, one on each side. Thus each bar is entirely independent of any other. In the Thompson steamer these bars are connected by links, and these links are in practice severely strained, the pull coming upon them. In the Hyde steamer, the whole pull is taken up by the rubber rolls and intervening angle-pieces, that is, by the parts expressly intended to bear the strain. By the use of the single rubber rolls, in case of injury to one part, only that part or roll is damaged and can be easily replaced. Moreover, they can be made of cheaper rubber than the single band and can be prepared, it is said, at a much less cost relatively. It is found in practice that they yield sufficiently to relieve the wheel, and, indeed, that they revolve slightly at each contact with the ground, on their own axes, thus wearing equally on all sides.

This construction, again, gives a grip on the ground somewhat like that, as has been remarked, of an elephant's foot. The tires yield sufficiently under the pressure to give a traction tread of 15 inches square on the ground under each wheel, equal to a pulling power of about 4,000 lbs. If we take the power required to draw one ton at the rate of one mile per hour over a level, clean, McAdam road as 68 lbs., this would make the steamer capable of hauling a weight of 60 tons over such a road at the speed mentioned. The power required for the same over a level newly gravelled road being given as 320 lbs., the steamer would pull 12 tons. It is stated that in practice, over a fair road, it will draw with ease 40 tons.

At the trial on the 20th inst., the steamer hauled two large columns (cast for the State Capitol), of a total weight, including trucks, of 26 tons, from the Miners' Foundry to the Central Pacific Railroad station

at the foot of Second street. There are varying grades on the route, some quite steep, and varying character of ground, but the machine traveled on steadily and easily with its heavy load, turning the corners nicely and otherwise acting to the satisfaction of the observers and managers. A severer test will hardly ever be met with in practice than that over the loose cobble stones and the railroad track on the steep grade of First street.

The steamer in question is intended for work in Utah. Another will be built for the competitive trial at the coming State Fair at Sacramento. It will be a matter of sincere congratulation for our coast, if California can, as now appears to be the case, invent and build a practical traction engine for hauling freight, for deep plowing, and for other agricultural and general purposes.

In our remarks, we cannot in fairness omit giving credit to Mr. W. W. Hanscom and Brothers, of the Ætna Foundry, for their assistance in constructing the steamer. Their mechanical skill and talent, and the energy and interest with which they have worked on the machine, have proved most valuable aids in rendering certain its success.

The New Pacific Railroad.

The extension of the Union Pacific Railroad westward is an old project, which has, however, had no prospect previously of becoming a speedy fact. The (comparatively) recent change of management of the California Pacific, and the acquisition of the other approaches to this city by the Central Pacific, have apparently led to the earlier undertaking of an enterprise of the greatest importance to the coast.

The route of the new line, as given, is about as follows: From the northern end of Salt Lake to the Snake River, Idaho; along this river, some 300 miles, to its bond to the north near the boundary of Oregon and Idaho; thence, some 300 miles, to Christmas lakes, north of the north-east corner of California; thence one branch north-west to connect with roads in Oregon, and another south to join the California Pacific. Whether this last will run to the east, or cross immediately and run along the west, of the Sierra Nevada, is not agreed on by journalists, who otherwise coincide as to the route here given.

The building of this road will lead to the extension of the Central Pacific eastward. It must have some effect on, or be affected by, the North Pacific, as well. In fact, the project has the most important bearing not only on our State, but also on Idaho, Montana and Oregon. But we must remember that there is no real certainty as yet concerning the road or concerning the route. That it will be of the greatest advantage to the coast, if built, is certain; but that it will be equally advantageous, with competing routes on each side, to the builders, is not so certain; and this renders us doubtful until we see work actually commenced.

Since the above was written, we see that the articles of incorporation of the California Railroad Eastern Extension Company have been filed in the office of the Secretary of State. The capital stock of the company is fixed at \$50,000,000, and the incorporators are Milton S. Latham, I. Friedlander, W. H. Tillinghast, W. F. Roelofson, Col. J. P. Jackson, Rudolph Sulzbach (of Frankfort on the Main), Gen. John B. Frisbie (of Valjejo), A. Gansl (representing the Rothschilds), E. H. Green (of London), Eugene L. Sullivan, Julius May (of Frankfort on the Main), A. de Laski, (of London), Faxon D. Atherton, and Richard P. Hammond. The Trustees, on Tuesday, met in this city and elected Wm. F. Roelofson, President, J. P. Jackson, Vice-President, M. S. Latham, Treasurer, and W. H. L. Barnes, Secretary. The Bulletin says: We have the most positive assurance that the entire capital stock of the company has been subscribed, and work will be commenced within a short time on the extension from Davisville northward, and the surveying of the balance of line will be pushed vigorously, preparatory to commencing the construction of the road at various points. The company are of the opinion that the road can be constructed and put in working order to Ogden within two years from this date.

THE Eureka (Nev.) Sentinel changes from a weekly to a daily paper. This is pleasantly indicative of the prospects of Eureka.

A New Palace Car.

The elegant drawing-room car, just completed by the Kimball Carriage and Car Manufacturing Company, has been thrown open to public inspection during the past week, and has been visited by many. As a sample of workmanship, it is certainly of the very highest order, and as a specimen of California manufacture and of Pacific coast material, it is exceedingly interesting.

The car body is 60x10¼ feet. The exterior is very elegant, with highly polished prima vera wood panels and blue-and-gold borders. On each side is an oval medallion, bearing the title of the car "Siempre Viva," surmounting the arms of California. At the corners and elsewhere are fine little landscape views of the Yosemite, the Big Trees, etc.

There are six sections or compartments, entirely distinct from one another, placed alternately first on one side and then on the other side of the car, and separated from one another by the common passage way which consequently has a zigzag path around three sides of each section. There is also a passage way through each section which can be closed by the party having the compartment when they desire. This arrangement enables a party to seclude themselves from others, or to mingle with their fellow-passengers, as far as they may elect. Each section has single and double berths, water-closet, wash basin, and complete toilet arrangements, with lamps, tables, closets of perfumed wood, crimson and green velvet lounges, etc., etc.

The finish of the interior is magnificent. The elegant, but most tasteful paneling is made up of thirty different kinds of wood, including California laurel, Mexican rose, coa wood, maplo, coral wood, etc. These are alternated with the best of taste. The ceilings are frescoed and the windows are of cut glass, where such material is admissible. The cars are warmed by Baker's patent heater.

Every modern improvement conducive to comfort and safety is to be found. The trucks are six-wheeled, with the American Elastic Wheel, and with Jeinsen's patent lubricators for the journal boxes. Miller's patent trussed platforms, compression buffers and automatic couplers are also employed, with other devices of the most approved construction.

We doubt whether a car has ever been made before, which can compare with this for really regal magnificence, joined with the most exquisite of taste. We are told that Mr. Atkinson has had the general superintendence of the construction, and has made all the drawings and designs. We are perfectly satisfied to have the car go East as a sample of what can be done by a California manufactory.

THE PARTZ SUGAR REFINER is still on trial at the Alvarado sugarie. The objects of this improvement are to cast the sugar loaf in a single cylinder containing one or more tons, instead of the multitude of small molds at present used—thus saving great space and much manipulation; also, by the use of steam outwardly and hot air forced through the mass, the crystallization is effected more quickly and more perfectly, and with a much less use of white liquor.

Two trials have been made, to test the best consistency in the boiling for this new process, and the proper force and temperature of the hot air injection. It is found that the air freely penetrates the semi-liquid mass and effects the drying, while the syrup discharges freely. A third filling was made on Tuesday last, the sugar having been boiled to a consistency supposed to be better adapted to this process. Great hopes are entertained of final success; a result which will revolutionize an important step in the present costly way of refining raw sugars. The trials are made with raw cane sugars from Peru, the beet sugar of the company's make having been previously sold in market.

The Crown of New England.

We gave, some time ago, an illustration of one of the glories of the Pacific Coast,—of the Yosemite Valley. To-day we give an engraving of a scene of grandeur of the Atlantic Coast. Both of these are from chromos of Prang. The engraving to-day, however, hardly does justice to the original which was shown us by Messrs. Snow & Roos, at their art gallery, 21 Kearny street. The green of the foliage, the azure of the mists, the glowing and fading colors of clouds and distant hills, cannot of course be depicted in the engraving. Still a very fair idea is given of the grandeur of Mt. Washington and its brother hills.

The chromo in question is after an exquisite painting by Geo. E. Brown. To give an adequate description of the work, or of the scene it represents, demands an abler pen than ours. We prefer, therefore, to recall the words of one whose name is dear to our coast,—who has written of our mountains and hills as he has written of those of New England. Thomas Starr King thus speaks of one point of view of the White Mountains of New Hampshire:

Such is the invitation with which North Conway coaxes us from the gaunt and grizzly peak which peers over one of its south-westerly walls. It is a short task to give the topographical dimensions and to describe the mountain framing of this village. We can say easily that it is a level bank about thirty feet above the channel and the meadows of the Saco River, extending some four or five miles, and measuring, perhaps, three miles in breadth. On the west, the long and noble Mote Mountain guards it; on the east, the rough, less lofty, and bending Rattlesnake ridge helps to wall it in, unattractive enough in the ordinary daylight, but a great favorite of the setting sun which loves to glorify it with Tyrian drapery. On the south-west, Chocoma manages to get a peep of one corner of its lovely meadows. Almost the whole line of the White Mountains proper, crowned in the center by the dome of Mt. Washington, closes the view on the north-west and north. And nearer on the north-east, swells the symmetrical Kearsarge, the queenly mountain of New Hampshire, which, when the Indian titles were expurged from the great range, should have been christened "Martha Washington." And far to the south, the hills "soften away in a series of smaller and smaller darkening mounds or humps, that answer to the description of the sea-serpent's back."

But what suggestion of the exquisite loveliness of the village is given by the most accurate report of its meadow farms and mountain guards? We well remember driving into it, some three years since, about sunset, under waving hangings of vermillion and gold. The sinking sunlight was shedding yellow splendor over the meadows, tinging the higher edges of the azure mists that settle in the ravines of Mt. Washington with tender rose-color, and flooding the upper half of the Rattlesnake ridge with purple, sharply ruled from a basis of deep bronze green. * *

One of the prominent pleasures of a cool day is to find different points for studying Mt. Washington. In what novelties of shapes, dignity and effect he may be thrown by the rambles of a morning!

We may see his steep, torn walls rising far off beyond a hill which we are ascending, and which hides from us most of the foreground in the village and the base on which the mountain stands; or may catch a glimpse of him through a couple of trees that stand sentinel to keep other mountains of the range from an intrusion that will reduce his majesty; or may seek a position in a grove whose breezy plumes afford the cheerful contrast of motion and color to set off his gray grandeur and majestic rest; or from different points near the Saco may relate him, by changing angles, into fresh combination with the level verdure of the meadows, or with some curve of its brooks or some graceful thicket of its maples.

BORING FOR WATER WEST OF THE COMSTOCK.—The continued failure of the supply of water in this section, says the *Gold Hill News* of May 11th, induced partly by the recent dry seasons, as well as by reason of the drainage caused by the sinking of deep shafts in the mines along the Comstock, directs the attention of practical men to the development of new and much-needed resources in that respect. Already the lack of water is severely felt in the milling and tailings-saving operations in

Great Coal Discovery at Elko.

Prospecting for coal has been going on with more or less success by several determined men since the 12th of January, 1869, in and about the low range of neighboring hills to the south-east of this town. The first discovery of the probable existence of coal was made by R. D. and John A. Norton, in company with Charles A. Brossman, about the time above indicated. These gentlemen, from the first discovery of croppings, worked energetically until about one year ago, when the Central Pacific Railroad Company took hold of the work of prospecting and pushed it forward for some two or three months without developing anything of a very substantial character. The first-named parties then again gave it another trial, and continued to work up to about the 1st of November, 1870, with varied success. During their entire operations, they sank or excavated three shafts upon the coal field at different points, varying in depth from 100 to 130 feet; they also run two incline shafts, or tunnels, one of which reached the distance of 125 feet in depth, following a vein of 2½ to 3 inches thick of a fair quality of coal.

About the middle of November, 1870,

Reducing Chloride of Silver.

[Continued from page 313.]

The projecting horizontal strips of silver jammed into the sides of the lower frame are then connected with the ends of the silver forming the loops in which the argentic chloride is suspended, and the whole apparatus thus charged is placed in a tub filled with water. After a short time galvanic action is discernible; the liquid gets gradually warmer, and a strong galvanic current is observed. After about twenty-four hours, the action has nearly ceased, and the whole argentic chloride is found to be completely reduced to metallic silver which retains in the silver loops the same shape, and, outwardly, also nearly the same appearance as when first introduced as argentic chloride. The latter contains always more or less chloride of copper, eliminated together with the silver during the operation of refining by chlorine, which is reduced together with the chloride of silver; in fact, this soluble chloride of copper helps to act as an exciting liquor for the battery. In the first experiments, a weak solution of salt (chloride of sodium) was used as an exciting liquor; but it was found that this could be dispensed with, and only common water used. The action, however, is in this case a little retarded, and does not become powerful until about two hours after the battery is set. By using a part of the resulting liquor from a previous reduction of argentic chloride, and which contains chloride of zinc, it has been found that the galvanic action sets in very rapidly, and accelerates thereby the completion of the reduction.

No acid is used, and therefore the amount of zinc used in each reduction has invariably been found to be almost the theoretical quantity to combine the chlorine of the argentic chloride treated with the metallic zinc, in order to form chloride of zinc.

The quantity of metallic zinc thus used was always from 24 to 25 per cent. of the argentic chloride reduced.

The reduced silver is boiled out in acidulated water, in order to remove the basic and oxy-chlorides, and finally in pure water, while still suspended in the silver loops. As soon as it is taken off the last boiling, it is immediately ready for the melting pot, since the heat from the boiling water dries the porous mass sufficiently to allow of its immediate melting. The seven zinc plates, when first used, weigh about 140 lbs. avoirdupois; the six slabs of argentic chloride, of the dimensions already given, weigh about 1,400 ozs. troy.

The zinc plates are used over again, until too thin for that purpose, when they are remelted, and cast into new plates. It has been found that the quantity of zinc used is little, if at all, increased by prolonging the time of connection with the silver plates after the reduction is completed; the whole apparatus, when once set in operation, can therefore be left to itself until it is found convenient to melt the reduced silver.

While this apparatus reduces the argentic chloride much quicker than if the latter is simply placed in contact with zinc or iron plates, it obviates any handling of the argentic chloride from the time the latter has been placed in the silver loops until the reduced silver is ready for the melting pot—advantages which have been fully appreciated by those who formerly had to resort to tedious and disagreeable manipulations.

THE FIRST SPIKE of the Pacific division, North Pacific R. R., was driven May 16th.



THE CROWN OF NEW ENGLAND—AFTER G. E. BROWN.

the cañons near here, and if a better supply could be procured at reasonable cost, an important object would be attained. All the deep shafts are sunk at the east side of the Comstock, certainly developing much water in that direction, but not enough, and it is also found now that at the lowest levels the water supply gives out, in some instances, altogether. The question now is whether the requisite supply of water could be found west of the ledge. It is well known that the rock on that side is extremely hard, and although drifts have been driven into it from the mines at various points and depths, all encountering more or less water, yet none have penetrated far enough to demonstrate how much water could be looked for in that direction. Certain parties are now agitating the idea of boring artesian wells west of the ledge, and it is very possible that in crossing the strata, all of which apparently dip east at an angle of forty-five degrees, like the Comstock, they might cut some heavy vein of water, or several veins, which would give a flowing well, or at least one which could not be pumped dry, therefore furnishing a good supply of that much-needed article. The many springs in the ravines west of the Comstock, even away up towards the summit of Mount Davidson, the head of Crown Point ravine, and even Washoe Lake, support the idea of there being a plentiful supply of water to be found by boring through the various strata west of the old Comstock somewhere. We would like to see the idea practically acted upon and demonstrated.

A WONDERFUL cave is reported discovered in the neighborhood of Owyhee, Idaho.

The Central Pacific Railroad Company again took hold of the matter in good earnest, through their Superintendent and coal expert, Mr. Tompkins, who continued the work of prospecting with unabated energy. The point selected by Mr. Tompkins, for the purpose of prospecting, is about three-fourths of a mile to the south-east of Elko, where he erected a boring apparatus and commenced operations. At the depth of 90 feet from the surface, the first vein of coal was penetrated, which was some 2½ feet in thickness. The work was still continued, and upon reaching the depth of 130 feet, another vein of coal of fair quality, of 3½ feet in thickness, was developed. Notwithstanding these discoveries, the boring was continued, under the firm belief that a still larger vein and a better quality of coal would ultimately be found. Such has proven to be a fact by the discovery and development, at the depth of 350 feet, of a splendid vein, 4½ feet in thickness, of the best quality of coal which has been opened out to them.

The specimens shown us by the Superintendent are superior to the best Rocky Mountain coal. Many coal mining experts who have examined the specimens, declare that the coal in question strongly resembles the Cumberland coal, and, in their opinion, is equally as good. The vein runs southwest to northeast, with a dip or incline to the northwest. Mr. Tompkins went below yesterday to report to the company his success. Upon his return it is anticipated that a large force will be put upon the mine. Beyond all question, this development will add much to the wealth and permanent prosperity of this town.—*Elko (Nevada) Independent*, May 13.

DOMESTIC ECONOMY.

Chemistry of the Kitchen.



Although it is generally admitted that a thorough knowledge of chemical science would be of value in the kitchen, we do not deem it necessary or desirable that those employed in or directing the labor of the kitchen should be chemical experts, yet a knowledge of the broad principles upon which the more ordinary operations depend, will result in a great improvement in the character of cooking in general, and a great saving in the quality and quantity of provisions and fuel.

We do not propose to enter into any speculative views or improvements, but confine our remarks to principles well established, and universally admitted among all theoretical and practical chemists, although such principles may appear contrary to the preconceived notions of some of our readers.

The subject will be discussed under the heads of Boiling, Roasting, Baking, Stewing and Frying.

Boiling.—When a liquid is placed over the fire to boil, the vessel becomes heated, and the particles of the liquid in contact with the heated portion of the vessel also become heated, and rise to the surface, on account of being expanded; by this operation fresh particles of the liquid are constantly being brought into contact with the heated vessel; this action continues, so that the liquid becomes heated throughout. Therefore if the heat be applied at the upper surface of the liquid, it will not be heated throughout, as liquids are bad conductors of heat. This can be clearly demonstrated by taking a champagne or other long necked bottle filled with cold water to within about an inch of the top, then hold the bottle in a slanting position, with the neck over and between three and four inches above the flame of an ordinary gas burner or lamp; in a few moments small bubbles will be seen to form in and escape from the water; these are due to the air being expelled from the water. After eight to twelve minutes, the water in the upper portion of the bottle neck will commence to boil violently, and by sliding one hand along up the bottle at about three inches below its mouth will be felt the first indications of the increase of temperature, which indication very rapidly increases as the hand is moved toward the mouth of the bottle; and so great is this increase of temperature that the hand cannot be held to the bottle neck much over an inch above the first mentioned point. Now if the bottle be set upon the table, the above experiments of the hand can be repeated after a quarter of an hour, showing that the heat has not traveled downward by conduction. If, in the commencement of the experiment, ice water be placed in the bottle, a lump of ice can be put in the bottle, having in the first place attached to it a stone, so as to sink it to the bottom; then proceed with the experiment as above set forth; you will then have ice and boiling water in the same bottle. This instructive experiment can be modified by putting the ice and stone into the bottle, then filling it about half full of ice water, after which hold the bottle at an inclination, and fill up by pouring into it, gently, boiling water, allowing the water to run down the side of the bottle; upon placing the bottle upright on the table, it will be found to be cold at the bottom and hot at the top; but if the bottle be now corked and inverted, the cold water will attempt to descend, and the hot water, which has become the lower stratum, attempts to rise; thus the two layers become commingled, and the whole mass reaches a uniform temperature. In making this last experiment it is advisable to do it over a large pan, as the bottle may break when the hot water is being poured into it.

We now return to the liquid over the fire, which, having arrived at the boiling point, no amount of fire can make it any hotter. This can be shown by placing a thermometer in the boiling water, then augmenting the fire; the thermometer will not rise, although the ebullition is very much increased. This is explained by the fact that after water arrives at the boiling tem-

perature, it absorbs an additional large amount of heat to convert the water into steam, which is no hotter than the boiling water; therefore, when the fire is augmented, the only effect is to form an increase of steam in order to carry off the increased amount of heat. The practical lessons to be learned from these facts are—

1st. Violent boiling does not increase the heat of the liquid, consequently does not cook articles therein more rapidly.

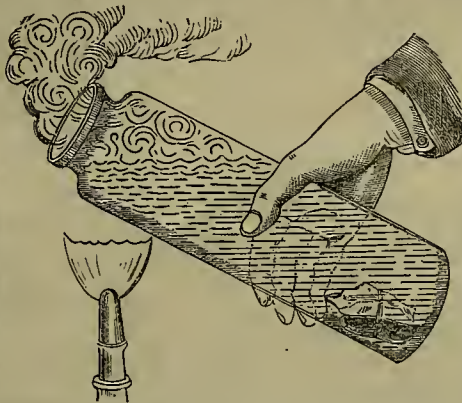
2d. There is a useless consumption of fuel which goes to the generation of steam, which is thrown out into the kitchen, making the air damp and hot, and charged with organic matter.

3d. Steam has the property of carrying off with it the aroma and flavor of vegetable substances, and meats, as shown in the manufacture of attar of roses, oil of peppermint, etc., etc., and therefore the excessive escape of steam incidental to violent boiling deteriorates the quality of the article being cooked.

4th. The violent ebullition throws the articles together, thus bruising them; and in the case of green corn, etc., results in the escape of valuable portions of the food into the boiling liquid.

In our next article we will show the application of the foregoing principles (in connection with others) to the preparation of soups, broths, etc., etc.—*Industrial Press.*

A NEW KIND OF WINE.—Dr. Thudichum,



in his lecture on wines at the Society of Arts, introduced a new wine which had been made from tea. He stated that the wine was a good stomachic, and would probably be useful both in ordinary diet and as a medicinal remedy.

Household Sins.

Some cooks will throw out the water in which meats have been boiled, without letting it cool to take off the fat.

Bits of meat are thrown out which would make hashed meat.

The flour is sifted in a wasteful manner, and the bread pan left sticking to it. Pie crust is laid by to sour instead of making a few tarts for tea.

Cold puddings are considered good for nothing, when often times they can be steamed for the next day.

Dish cloths are thrown down where mice can destroy them.

Vegetables are thrown away that would warm nicely for breakfast.

The scrubbing brush is left in the water. Tubs and barrels are left in the sun to dry and fall apart.

Nice handled knives are thrown into hot water.

Silver spoons are used to scrape kettles. Cream is allowed to mould and spoil.

Coffee, tea and spices are left to stand open and lose their strength.

The cork is left out of the molasses jug, and the flies take possession.

Vinegar is drawn into a tin basin and left to stand until both basin and vinegar are spoiled.

Dried fruit is not taken care of in season and becomes wormy.

Potatoes in the cellar grow, and the sprouts are not removed until they become useless.

Pork spoils for want of salt, and beef because the brine wants scalding.

Bones are burned that would make soap.

Clothes are left out on the line to whip to pieces in the wind.

Brooms are never hung up and soon are spoiled.

WASHING TABLE LINEN.—It is poor economy to boil table cloths if brown. It gives them an old, yellow look. White ones may be kept clear by spreading for a few hours in the hot sun. If there are fruit stains on them pour boiling water over them before washing.

Domestic Receipts.

RHUBARB VINEGAR.—It is said that a very excellent vinegar may be made from the rhubarb plant in the following manner: For five gallons take 12 ordinary sized stalks of rhubarb; pound or crush them with a piece of wood in the bottom of a strong tub; add 3 gallons of water; let this stand 24 hours; strain off the crushed rhubarb and add 9 pounds of sugar free from molasses, and a small teacupful of the best brewer's yeast; raise the temperature to 65° or 68°, and put into a 12-gallon cask; place it in a position where the temperature will not fall below 60°. In a month strain off from the grounds, returning it to the cask again, and let it stand till it becomes vinegar.

TO MAKE CLOTHING WATER-PROOF.—Dissolve half a pound of sugar of lead in a bucket of soft water; add half a pound of alum and stir till clear. Put the garment to soak in the liquid for 24 hours; then take out and hang up to dry, without wringing. This mode of rendering cloth water-proof is capable of a very wide and useful application. It is applicable to all kinds of cotton goods. Overalls, tents, etc., may, by its use, be made to shed water like a duck's back. The preparation is very simple and cheap, and to persons who affect boating, fishing, or yachting, where they expect to be exposed to the weather for several days, it will prove a valuable receipt.

A SUBSTITUTE FOR MILK OR CREAM.—Beat up the whole of a fresh egg in a basin, and then pour boiling tea over it gradually, to prevent its curdling. It is difficult from the taste to distinguish the composition from rich cream.

Mechanical Hints.

TO PRODUCE UPON IRON A DURABLE BLACK SHINING VARNISH.—Take oil of turpentine, add to it, drop by drop, and while stirring, strong sulphuric acid, until a syrupy precipitate is formed, and no more of it is produced on further addition of a drop of acid. The liquid is now repeatedly washed with water, every time refreshed after a good stirring, until the water does not exhibit any more acid reaction on being tested with blue litmus paper. The precipitate is next placed upon a cloth filter, and after all the water has run off, the syrupy mass is fit for use. It is painted over the iron with a brush; if it happens to be too stiff, it is previously diluted with some oil of turpentine. Immediately after the iron has been so painted, the paint is burnt in by a gentle heat, and, after cooling, the black surface is rubbed over with a piece of woolen stuff dipped in, and moistened with linseed oil. It is said this varnish is not a simple covering of the surface, but that it chemically combines with the metal, and does not, therefore, wear off or peel off, as other paints and varnishes do, from iron.

PAINTING ZINC.—A difficulty is often experienced in causing oil-colors to adhere to sheet zinc. Roettger recommends the employment of the following composition: One part of chloride of copper, one of nitrate of copper, and one of sal-ammoniac are to be dissolved in sixty-four parts of water, to which solution is to be added one part of commercial hydrochloric acid. The sheets of zinc are to be brushed over with this liquid, which gives them a deep black color; in the course of from twelve to twenty-four hours they become dry, and to their now dirty gray surface a coat of any oil-color will firmly adhere. Some sheets of zinc prepared in this way, and afterwards painted, have been found to entirely withstand all the atmospheric changes of winter and summer.

TO BLACKEN ZINC.—Zinc may be given a fine black color, according to Knapp, by cleaning its surface with sand and sulphuric acid, and immersing for an instant in a solution composed of four parts of sulphate of nickel and ammonia in forty of water, acidulated with one part of sulphuric acid, washing and drying it. The black coating adheres firmly, and takes a bronze color under the harnisher. Brass may be stained black with a liquid containing two parts arsenious acid, four hydrochloric acid, and one of sulphuric acid in eighty parts of water.

CEMENT FOR SEALING EDGES OF THIN GLASS.—Hunt's formula for a cement, which is used for sealing the edges of thin glass is to evaporate Canada balsam to a solid consistence, dissolve it in an equal bulk of benzole and then thicken it to about the density of cream with white lead or zinc ground in oil.

LIFE THOUGHTS.

EXPECT nothing from him who promises a great deal.

PEOPLE obey willingly when they are commanded kindly.

HOLD your little twinkling light holdly and honestly; then God will pour in the oil and make it a blazing torch.

THE vain man idolizes his own person, and here he is wrong; but he cannot bear his own company, and here he is right.

FROM the small hollow of the dice-box arise fear, rage, convulsions, tears, oaths, blasphemies—as many evils as ever flew from the box of Pandora.

After All.

It would be a sad thing, to unbelieving ones, if it should transpire that they are mistaken, after all—in the end they should face death with the painful consciousness of something more than they have counted on beyond. And unless your faith in unbelief is stronger than that of many another, this may happen. The chances are very great indeed, that happen it will any way.

Unbelief is rarely stronger than belief—never so strong when strength is most needed. Unbelief may be in the estimation of certain philosophers, more philosophical than belief, but thousands can testify, have testified, that it is not half so comforting. Philosophy is good, but at certain times comfort is better, and it is always more sweet. Philosophy may help a man to die like a stoic; but belief makes it his glorious privilege to put aside his earthlyness like a saint.

Then what does one lose, by believing? Nothing, surely. But what may he not lose, clinging ever to his doubt? It is this possibility of loss that ought to be more carefully considered. Did possible loss attach to both sides of the question of accepting Christ, the skeptic would seem reasonable in skepticism. But such is not the fact. Accepting Him as the Savior of the race entails no loss whatever, unless to give up some injurious pleasures count as losing; whereas positively rejecting Him may result in the greatest loss possible to any.

After all your want of faith, there may come an eternity of regrets. After all your unbelieving smiles at the foolish faith of some whom you now choose to denominate simple-minded, you may come to see that in all their foolishness and simple-mindedness there was the truest wisdom. Others have known a like experience. Are you wiser than they who have gone before?

A BEAUTIFUL THOUGHT.—God knows what keys in the human soul to touch, in order to draw out its sweeter and most perfect harmonies. They may be the minor strains of sadness and sorrow; they may be the loftier notes of joy and gladness. God knows where the melodies of our nature are, and what discipline will bring them forth. Some with plaintive tongue must walk in lowly vales of weary way; others in loftier hymns of nothing but joy, as they tread the mountain tops of life; but they all unite without discord or jar as the ascending anthem of loving and believing hearts finds its way into the chorus of the redeemed in heaven.

PROFUNDITY OF THOUGHT is generally purchased at the expense of versatility. To be very profound it is necessary that the intellectual eye be fixed for a long time on one continued series of operations; to be versatile the mind must glance from subject to subject, and brood over none. Profundity plunges to the depth, while versatility skims the surface of the sea of speculation; while the former is going down, the latter is sporting onward on easy wing.

TO JUDGE OF CHARACTER.—We may judge a man's character by what he loves—what pleases him. If a person manifests delight in low sordid objects, the vulgar song and debasing language; in the misfortunes of his fellows or animals, we may at once determine the complexion of his character. On the contrary, if he love purity, truth, modesty—if virtuous pursuits engage his heart, and draw out his affections—we are satisfied that he is an upright man. When we see a young man fond of fine clothes, and making a fop of himself, it is a sure sign that he thinks the world consists of outside show and ostentation and he is certain to make an unstable man, without true affection or friendship, fond of change and excitement, and wearying of those objects and pursuits which for a time give him pleasure.

Business Cards.

A NEW PATENT.

If you want a superior set of Teeth on Gold, Rose-Pearl, or Pyroxaline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOSEPH GILLOTT'S
STEEL PENS.

Sold by all Dealers throughout the World.

JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, J. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 2v21-3m

JOHN ROACH, Optician,

Has removed from 222 Montgomery street to 540 Washington street, East of Montgomery. Surveying Instruments made, repaired and adjusted 2v17-3m

Farmers and Mechanics
BANK OF SAVINGS,

No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate. H. DUTTON, President. GEORGE M. CONDEE Cashier. 19-16-3m

W. E. EASTING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
595 Clay street, (southwest cor. Sansome),
16v12-3m SAN FRANCISCO.

SAN FRANCISCO
CORDAGE COMPANY.

Mantle Rope of all sizes. Also, Bale Rope and Whole Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Mala.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

L. SCHUMANN,
PIONEER

Meerschbaum Pipe Manufacturer,



No. 341 KEARNEY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschbaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS, President.
R. N. VAN BRUNT, Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

DR. F. HILLER,

Homeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. m24-6m

SONORA HOTEL,

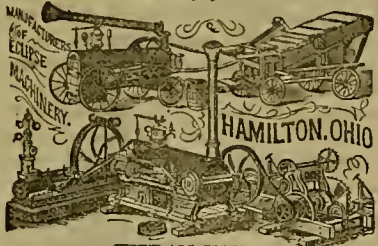
T. BRODIGAN, Proprietor.
Best Meals and Beds in Sonora, Cal. fe25-3m

Eastern Advertisements.

OWENS, LANE, DYER & CO.

MANUFACTURERS OF
The Eclipse Saw Mills,

Combining THREE PATENTED Improvements
Essential to The Well Working of Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.

With the celebrated
STEAM THRESHER, "California Chief."

For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

Send for Circular.

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier.
You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

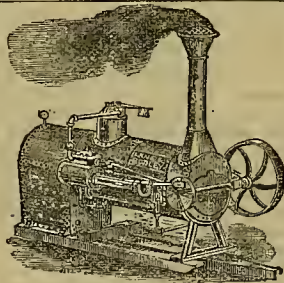
It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render all other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous.

Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,

MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 AND 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? m18-3m



LANE & BODLEY,

STATIONARY AND PORTABLE
STEAM ENGINES,
PREMIUM CIRCULAR SAW MILLS
—AND—
MILL MACHINERY.

PATENT INDEPENDENT AND SIMULTANEOUS
WROUGHT IRON HEAD BLOCKS,
Patent Lath Machinery,
SHINGLE MACHINES,
SAFETY POWER ELEVATOR.

LANE & BODLEY'S PATENT
POWER MORTISER,
BLANCHARD'S SPOKE LATHE,
Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery,
SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,
With Self-Lubricating Journal Boxes,
WE HAVE
Three Hundred Pulley Patterns
ONE HUNDRED HANGER PATTERNS,
OF UNIFORM STYLE AND WEIGHT.

Descriptive Circulars & Price Lists furnished on application to
LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.

FOR SALE
Send for Circular.

FORSMAN
Iron-Old French
Burr-Stone Mills
Are the best for Grinding or Planing
Wheatstone in do more and better work with
the same power than any other.

Size, 18, 20, 24,
and 30 inches.
Weight 400,
600, 1,000 and
1,600 pounds.
Sell all kinds of
MILLS
FURNISHING.

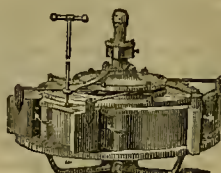
We build complete
MILLS including
Belting, shafts and
all work of
this nature.

Send for Circular.

J. A. FORSMAN, AGT.
No. 13 South Canal St.
CHICAGO, ILL.

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO,

Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers



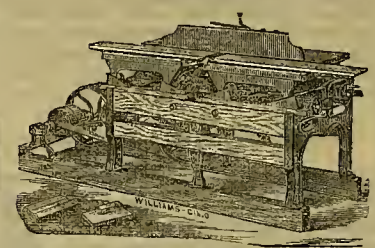
OF THE Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular. m11-6m

Improved Universal Wood Worker



Jointing, Rabbling, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Flowing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTLEY & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
m11-6m

PORTABLE MILLS.

GRIST MILL, Two Run of Stone
Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOUR-
ING and Stock Feed, Bolts, Smut-
ters, Corn Shellers, Flour Pack-
ers, Hominy Mills, Belting, Picks
and Mill Work generally.
SEND FOR DESCRIPTIVE PAM-
PHLET.

m11-3m ISAAC STRAUB & CO.,
Cincinnati, Ohio.



Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,
showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-1y

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

SAFES
BANK LOCKS. VAULT WORK.
HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

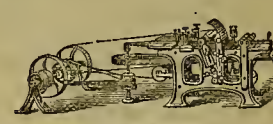
Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati
Prices.
Send for Catalogue. m11-0m

RUSS PATENT
MONITOR MOLDING MACHINE,

MADE BY
R. BALL & CO., Worcester, Mass,

Manufacturers of the latest Improved Wood-Working
Machinery for Planing Mills, Car Shops, Agricultural
Implement, Furniture, Sash, Blind, and Door Facto-
ries, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly

DICKINSON'S
Patent Shaped Diamond Carbon-Points.

Fig. 1 Fig. 2 Fig. 3 Fig. 4

Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burns, Emery Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to J. DICKINSON, 64 Nassau St., N. Y. ap15-6m

AHEAD OF THE WORLD.
THE NEW TREADLE POWER,
Just Invented, and used exclusively on the HOWE
SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best,
Consequently the most Popular Machine in use. The
Daily manufacture is over 600 Machines.

H. A. DEMING, Agent,
ap15-2m No. 113 Kearny street, San Francisco.

E. J. FRASER, M. D.,
SURGEON,

No. 108 Stockton street, S. F., Cal.

CAUTION.

BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in con-
vention of his rights, which necessarily are numerous,
BETT'S being the original Inventor and Sole Maker in the
United Kingdom.

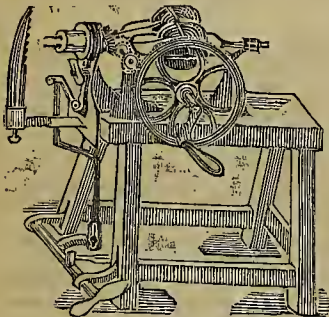
L. WHARF ROAD, CITY ROAD, LONDON, AND
BORDEAUX, FRANCE.

Machine for Screwed Boots and Shoes.

We have been shown what appears to be a very useful device for the manufacture of screwed boots and shoes. The accompanying cut has been furnished us, which, although only a rough sketch, may yet aid in understanding the description.

The device is a double apparatus which forms and puts in two screws at a time.

The proper wire is placed on the two reels, one coil on each reel, which are shown at the top of the machine, which are so mounted that their frames converge to a point, and which are actuated through gear wheels by a hand wheel. The wire passes from the reels into peculiar dies, whose action, in cutting the screw threads, draws the wire from the reels. After leaving the dies, the screws pass out through openings in the face of a cylindrical device (which holds the dies) into the sole of the boot which is placed on the vertical serrated standard shown in front of the ma-



chine. The wires are here devoted as projecting from the cylinder mentioned. On the face of this cylinder is a rotary cutting plate which is actuated through a series of levers by a treadle, and which cuts off the screw when inserted a proper distance into the hoot.

The device is simple and its advantages will be readily appreciated by those engaged in the manufacture to which it refers. Steps have been taken, through the SCIENTIFIC PRESS Patent Agency, to secure the rights of the inventor, Mr. Andrea Cavalli, of this city. Patent rights may be obtained from Mr. V. Noly, Office *Courrier de San Francisco*, 515 Jackson street, S. F.

Patents to Placer Mining Claims.

In answer to a letter from Hon. A. A. Sargent, the Commissioner of the Land Office has addressed a letter, under date of May 8th, 1871, to the Register and Receiver at Sacramento, in which are instructions of importance to miners.

An application for a patent for a placer mining claim is required by the act to come within the same conditions applicable to claimants of veins or lodes, and the proceedings prior to the survey are the same in both cases; as it is fully set forth in the circular instructions from this office bearing date the 8th of August, 1870.

After the expiration of the ninety days, notice given in such cases, proof of which must be made to the satisfaction of the Register, the placer mining claimant, where the subdivision of a forty-acre tract is necessary, may engage under private contract either a United States deputy, or a county or local surveyor to perform the work at the expense of such placer claimant, such forty-acre tract to be invariably laid off into four lots of equal area; and to suit the circumstances of the case, these lots may be either in the form of squares 10x10 chains or in the form of parallelograms, 5x20 chains; but the lines of these surveys must not be run diagonally to those of the regular surveys, but parallel and at right angles therewith, so as to avoid confusion in the disposal of the remainder of the land.

Such surveys when executed, must be properly sworn to by the surveyor, either before the Register or Receiver, a Notary Public, or an officer of a Court of record, the deponent's character and credibility to be certified by the officer administering the oath.

Upon the filing of the plat and field notes of such survey duly sworn to, you will transmit the same to the Surveyor-General for verification and approval, who, if he

finds the work to have been correctly executed, will give such ten-acre lot, where the same constitutes the entire claim, its appropriate numerical designation in the order of surveyed mineral claims in the township; and in cases where several of these ten-acre lots constitute and are comprised within one claim, they will not receive separate numbers for each lot, but the whole will receive one number in the order of mineral claims in the township.

The Surveyor-General will then mark such claim upon the original township plat on file in his office, and send an authenticated copy of the plat and field notes of the survey to the Register of the proper local land office and to this office as is the case of vein or lode surveys.

Thereafter, if no adverse claim has been presented, an entry will be allowed of such claim at the rate of two dollars and fifty cents for each acre or fractional part of an acre embraced in the survey; the local land officers preserving an unbroken series of numbers for all mineral claims, both lode and placer, and then report the care to this officer in the usual manner, accompanied with a letter of transmission.

It is to be distinctly understood that the foregoing remarks as to survey are intended to apply only to those placer claims which cannot be entered in forty-acre legal subdivisions without interference with the rights of other bona fide mineral or agricultural claimants in the same tract, and you will in all cases require testimony as to whether or not such claimants to such forty-acre tract exist; and where such are found, require the applicant, at his own expense, to cause the survey in ten-acre lots in manner aforesaid, so as to segregate his claim from the remainder; and where there are no such other claimant in the same forty-acre tract, require the entry to conform in its exterior limits to such forty-acre legal subdivisions.

In case there are several placer mining claimants within the same subdivision, they have the option of making joint entry of the land, or of having such smaller subdivisions made and receiving separate patents.

Mineral and Agricultural Lands.

Mr. J. G. McCallum, Register of the U. S. Land Office at Sacramento, has written a letter with regard to disputes of mineral and agricultural land claimants. The letter, dated May 11th, is, in substance, as follows:

In a question between mineral and agricultural claimants as to the character of land applied for by both as between them, the proofs are confined to the land surveyed and applied for as a mining claim, whether a 10-acre tract or less.

Where there is no other survey than the usual one returned by the township plat, the proofs are taken as to the smallest legal subdivision; that is, 40 acres when not fractional. If, for instance, in a 40-acre tract, a 10-acre tract is so valuable for mining as to make the whole 40 acres more valuable for mining than for agriculture, the whole is reserved as mineral; if, however, the 30 acres are so valuable for agriculture as to make the whole more valuable for this than for mining, the whole is awarded agricultural.

It is therefore important to both miner and farmer that the mining claim upon such 40-tract should be surveyed and segregated. The law does not require this of the miner, but by so doing he saves the expense of proving his claim and the costs of litigation. Otherwise it may be merged in the balance of the legal subdivision which may be valuable agricultural land.

If the miner declines to have the survey made, the farmer would have to pay for such survey, unless the Surveyor-General will order it on application. Whether he feels authorized to do this, under the present law, is for the Surveyor-General himself to decide, and to him the matter should be referred.

Co-OPERATIVE MINING.—Agreeable to previous notice, a respectable number of miners assembled, last evening, at 8 o'clock, at Armory Hall, in Treasure City, and were addressed by Dr. McMeans on the subject of Co-Operative Mining. His remarks were well received, and he was requested to visit the Hill again, when, it is contemplated, a large number of miners will be present to consider the subject.—*White Pine News*, May 16.

ORANGES AND GRAPES.—The indications are exceedingly favorable for an unusually large orange and grape crop, the coming season, in the vicinity of Los Angeles,

California and the American Institute Fair.

The following letter, addressed to Mr. S. W. Shaw, of this city, President of the "California Fruit Growers' Association," has been handed us for publication. It fully explains itself, and we trust our fruit growers and others, interested in the productive industries of California, will see to it that the Pacific coast is properly represented at the Exhibition of the American Institute this coming fall. Mr. Shaw authorizes us to state that he proposes to be present at the Fair, and will be most happy to attend, personally, to all California exhibits. We append the letter as follows:

DEAR SIR:—Mr. Lyman, of the N. Y. *Tribune* suggests to me that, as it is desirable that California be properly represented in the fruits as well as other industrial products, at the coming Autumnal Exhibition of National Industries under the management of the American Institute, in New York, you would be one of the best persons to communicate with on the subject. As an old Californian, I am anxious that the land of big beets, big pumpkins, big trees, and big vines—whose fruits are so delicious, whose wines are so good, whose mines teem with as much mineral wealth as does her soil with other virgin products—should let the people of the East perceive with their own eyes some of the big things of which she is capable. They have often read, but do not yet more than half believe the truth, and it will take nothing less than ocular demonstration to fully convince them. If you and other progressive Californians will pitch in and send on such a representation of products as will do honor to the State I will take especial pains to secure for them a place in the exhibition according with their merits, and shall also draw particular attention to them through our metropolitan press, so that all may know where to find and admire them. Our annual attendance at these great exhibitions comprises hundreds of thousands, and I have always thought it a pity that the Pacific slope should fail to reap the manifold advantages which an adequate representation of her industries would secure to her. Respectfully,
GEO. F. DAWSON.
Supt. Am. In. Exhibition.

WHICH WAY DO YOU PIPE?—Under this heading, the *New North West*, of May 5th, gives the following, which is open to further questioning and explanation: Mr. Mat. Wallwork informs us that the Davis Bros., mining on the lower portion of Henderson gulch, have "taken a turn" on mining that is opening the eyes of hydraulic miners. As we understand it, they pipe toward the boxes. This seems the principle of the innovation. It is said to work wonders in chasing dirt and boulders into and through a flume, saving much labor. And now, when you come to think of it, don't it look sensible? The Henderson miners say it is just the thing, and a number are shifting around to work on the same principle. We understand one of the Davis Bros., just over from Idaho, brought the idea with him, and has turned it loose in Henderson. It might do fully as well in other hydraulic camps.

A FAVORABLE NOTORIETY.—The good reputation and extended use of "Brown's Bronchial Troches" for Coughs, Colds and Throat Diseases, has caused the Troches to be extensively imitated. Obtain only the genuine "Brown's Bronchial Troches," and do not be influenced by those who make more profit by selling worthless imitations.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14y20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MULLER supplies the city with opera glasses and spectacles. He is a scientific optician and knows what kind of glasses will best suit the eyes,

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 215p70 shows that our patron has paid his subscription up to the 21st of September, 1870; 41y72, that he has paid to the 4th of January, 1872; 410, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

W. H. MURRAY—Eastern States.
M. B. STARR—Pacific Coast.
THOS. POYZER—California.
WM. J. CLARK—California.
L. P. MCCARTY—California.
E. P. HICKS—California.
A. O. KNOX, City Soliciting and Collecting Agent.

London Agency.—BATES, HENRY & Co., 4 Old Jewry, E. O., & Geo. Street, 30 Cornhill, E. C. London will receive subscriptions and advertisements for the Press.

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

Send us Communications.—They will be re-spectfully. If you have not time or the experience to write finished articles, send us facts brief and plain. We will take care of them. Remember that writers improve themselves with others by use of the pen. Officers of societies, clubs and meetings, please report.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-hp-tf

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for the preparation of Cocoa, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chocory Mills, Bruges, Belgium. fe25-ly

HIBBERD, SANBORN & CO.,



South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners, Ballard Bails and Ten Pins. Fancy Newels and Balusters. 21v22-5m.

YOUNG LADIES' SEMINARY, BENICIA.

The Twentieth Annual Session of this well known institution will commence on the

26th day of July Next.

Previous to that date there will be a complete renovation of the establishment. A fine School Room and many other improvements will be added, and new furniture, carpets, bedding and apparatus supplied.

The course of study and mode of instruction will be such as the best modern culture demands; and in every genuine advantage of school and home, the institution will prove its claim to a place in the first rank.

For particulars address

19v1-lmhp REV. C. H. POPE, Benicia, Cal.



Travelers are always liable to sudden attacks of Dysentery and Cholera Morbus, and these occurring when absent from home, are very unpleasant. The PAIN KILLER may always be carried upon such cases. As soon as you feel the symptoms, take one teaspoonful in a glass of new milk and molasses, and a glass of hot water, stir well together and drink hot. Repeat the dose every hour until relieved. If the pain is severe, bathe the bowels and back with the medicine clear.

In cases of Asthma and Phthisis, take a teaspoonful in a glass of hot water sweetened well with molasses, also bathe the throat and stomach faithfully with the medicine, clear.

Dr. Sweet says it takes out the soreness in cases of hemorrhoids faster than anything he ever applied.

Fishermen, so often exposed to cuts by having their skin pierced with hooks, and fins of fish, can be relieved by bathing with the Pain Killer as soon as the accident occurs; in this way the anguish is soon abated; bathe as often as once in five minutes, say three or four times, and you will seldom have any trouble.

The bites and scratches of dogs and cats are soon cured by bathing with the Pain Killer clear. may-ly

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on this day's copy—which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company. Location of Works, Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the twenty-third day of May, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 25 Merchants' Exchange, San Francisco.

Hanscom Copper Mining Company.—Location, Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of April, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said company, payable on or after the 8th day of May, at the Secretary's office, 21 and 23 First Street, Office Golden State Iron Works, San Francisco, California.

Kincaid Flat Mining Company—Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of April, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, No. 220 Clay street, San Francisco.

Latawana Mining Company, near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of May, 1871, an assessment of Twenty Cents (20¢) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, 614 Merchant street, Room 26, San Francisco, California.

Mauntau Silver Mining Company—White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of April, 1871, an assessment of five cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 37 New Merchants' Exchange, San Francisco.

Mina Rica Mining Company—Location of works, Auburn Mining District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of April, 1871, an assessment of Twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the Company's office, Room 2, No. 418 California street, San Francisco, Cal.

Mohawk & Montreal Cons. G. & S. M. Co., Meadow Lake, Nevada County, State of California.

Notice.—A special meeting of the stockholders of the above named company for the purpose of electing Trustees and such other business as may properly be brought before the meeting, will be held on Tuesday, the 27th day of June, 1871, at 3 o'clock, p. m., at the office of R. Wegner, No. 414 California street, San Francisco, Cal.

Nevada Land and Mining Company.—Location of Works, Steptoe, Johnson and Latham, Antelope and Clifton District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, Cal.

Salamander Gold and Silver Mining Company, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 14th day of May, 1871, an assessment (No. 8) of thirty-five cents per share was levied upon the assessable stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, J. J. Pfeiffer, at the Police street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of June, 1871, shall be deemed delinquent, and will be sold for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

BERRY & PLACE, Importers and Dealers in MACHINERY AND SUPPLIES. SAN FRANCISCO, CAL.

Solo Agents in Pacific States for Sale of Blake's Patent Steam Pumps, Smith's Wood-Working Machinery, Davis & Furber's Woolen Machinery, The Swain Turbine Water Wheel, Wood, Light & Co.'s Machinists' Tools, Starvevant's Pressure Blowers, Hurdy's Portable Drillers, Dreyfus' Patent Self-Oilers, Gardner's Safety Stop Governor, Page's Belting, Etc., Etc.

Dreyfus' Patent Self-Oilers and Cylinder Cups.

A saving in oil of 75 to 95 per cent. guaranteed. No trouble of "oiling up!" No waste of oil! No oil cans needed!

by the use of the

NATHAN & DREYFUS SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transparent Glass Cup, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'.

Send for Circular and Price List to BERRY & PLACE, San Francisco.

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used, and the machinery employed especially adapted to their manufacture. Thus

We warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and sith or BLACE ON FINISH, as you may require. Send for Price List to BERRY & PLACE, San Francisco.

Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages: First—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind. Second—Its great economy of both tallow and fuel. Third—It is self acting, and supplies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be in fact blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warerooms, 112 and 114 California street, San Francisco.

WOODWORTH PLANERS. DIMENSION PLANERS.

With Patent Expansion Feed Gears and other Improvements. Also, every description of the most improved

Patent Wood-Working Machinery,

Embracing Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machines, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arbors, Knife Grinders, Moulding Heads, Mortising Chisels, Matcher Sets, Band-Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sole Leather, Belt Studs, etc., etc., for sale at Eastern Prices, at the Machinery Depot of

21v22-tf BERRY & PLACE, 112 and 114 California St., San Francisco.

Pinto Mining Company, Location of Works, Siltwood, Pinto Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of May, 1871, an assessment of twelve and a half cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, D. B. Arrowsmith, 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 26th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco.

Sierra Iron Company—Location of Works, Sierra and Pinamas Counties, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 17th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold or silver coin, to the Secretary, at the office of the Company, No. 428 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 20th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, CALEB T. FAX, Secretary.

Office, Room No. 7, 428 California street, San Francisco.

Stockholders' Meeting—Office of the Rogers Silver Mining Company, San Francisco, May 10th, 1871.

In accordance with a resolution adopted at a meeting of the Trustees of the Rogers Silver Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company No. 6 Montgomery street, San Francisco, California, on Tuesday, the 20th day of June, A. M., 1871, at 11 o'clock, A. M., to take into consideration, and decide upon the proposition to increase the capital stock of said company from nine hundred thousand dollars, divided into three thousand shares of three hundred dollars each, the present capital of the company, to fifteen hundred thousand dollars, to be divided into fifteen thousand shares of one hundred dollars each.

GEO. S. MANN, } Trustees.
JOHN BARTON, }
O. D. WYMAN, }
R. PERRY, }

Yosemite Consolidated Mining Company, Santa Fe District, Lander County, Nevada.

Notice is hereby given that the Annual Meeting of the stockholders in the above named company will be held at their office, No. 28 Merchants' Exchange, California street, San Francisco, California, on Monday, the fifth day of June, 1871, at 12 o'clock M., for the election of Trustees, and the transaction of other business. By order of the President, DAVID WILDER, Sec.

TO THE MINING INTEREST.—Believing that they can thereby aid the Mining interest, the managers of the Eighth Industrial Exhibition of the Mechanical Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL to OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care J. H. Gilmore, San Francisco.

THE OFFICE OF "THE BUREAU OF MINES"

AND Mining Statistics of the Pacific Coast"

IS LOCATED FOR THE PRESENT AT

No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the Registry of Mines.

Parties desiring to communicate by letter, will obtain

Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,

Secretary of "Mining Bureau Pacific Coast,"

San Francisco, Cal.,

Care of Lock Box 406.

THE RISDON Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equals Eastern Wheels.

Directors: S. F. Butterworth, Wm. Norris, Wm. Alvord, Joseph Moyle, Chas. E. McLane, John N. Risdon.

WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

21v17-4y

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary.

20v17

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

N. E. corner of Tshama and Frsmont streets, above How-
ard street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
est establishments, manufactured by us at the lowest
prices, and of the best quality.
Particular attention paid to Jobbing Work and
Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m

GODDARD & CO.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF

STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
4v1 SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipes in
large quantities.

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipes and guarantee
it to stand any pressures required; it is lighter than iron
pipes and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
For further particulars, apply at the offices of the Com-
pany, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-4f

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames

—ALSO—
HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will be
promptly attended

This highest price paid for Scrap Iron 9v143m

The Stetefeldt Furnace.

For information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
San Francisco.
4v21-1y

FAIRMOUNT MACHINE WORKS, 2106 WOOD STREET,

Power Loom Works, N. W. Cor. Hamilton and 21st Streets,

Philadelphia,.....Penn.

THOMAS WOOD,

Manufacturer of

POWER LOOMS, SPOOLING, WINDING,

Dyeing, and Sizing Machines;

AND SELF-ACTING

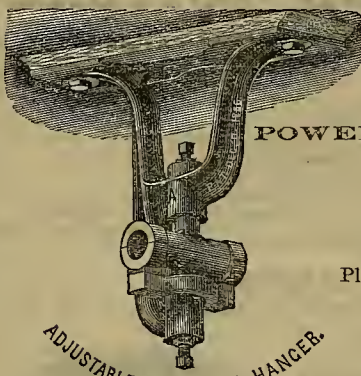
WOOL SCOURING MACHINES.

Plans taken and Factories fitted out complete with

SHAFTING AND GEARING.

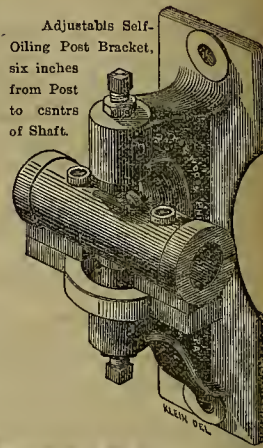
Pulleys, Couplings and Self-Oiling Hangers.

ADJUSTABLE OR RIGID BEARINGS ALWAYS ON HAND.



ADJUSTABLE SELF-OILING HANGER.

Adjustable Self-
Oiling Post Bracket,
six inches
from Post
to centre
of Shaft.



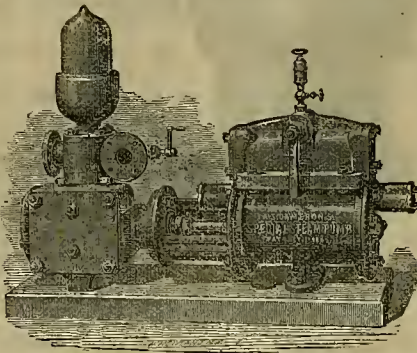
CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

BARTOL'S
STEAM TRAP.
Surface Condensers.

DAVID STODDART,
114 BEALE STREET, S. F.



GEO. T. PRACY'S
MACHINE WORKS,
109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.



These Governors are the most sensitive
built, running at a high velocity and
maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,
—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND
PUNCHES. 3v21

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN.

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
necting of all sizes and patterns, furnished with dispatch
and PRICES MODERATE. J. H. WOOD V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, HARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-4y

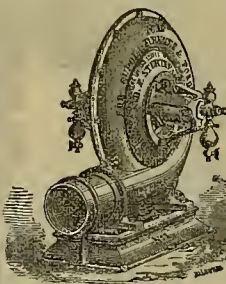
NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
16v14q



STURTEVANTS

PRESSURE

BLOWER,
Are for sale by

Berry & Place,

112 California st.,
San Francisco,
who have the differ-
ent sizes always in
store. 4v22

WOODWORTH PLANERS



Smith's Patent Wood-working Machinery of all descrip-
tions. Sole Agents. BERRY & PLACE,
112 and 114 California street, San Francisco.

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills

AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, 318 CALIFORNIA STREET, San Francisco.
25v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco
2v21-4f

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee
that the purchasers shall be under no expense for re-
pairs for TWELVE MONTHS, and guarantee the mill to
crush (regular work) One Ton Per Hour of the Hardest
Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.
To put one of the Wilson Mills over the mountains,
from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and
repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

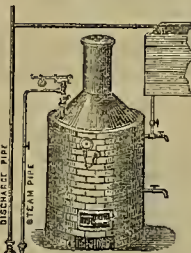
DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its
merits. One can always be seen at the Pacific Iron
Works.
Ten of these Mills are now in operation.
For further particulars address

FURMAN R. WILSON,
San Francisco.

STEAM JET PUMP.

Blakeslee & Williams' Patent, For
Water, Oils, Acids, Etc.



The best cold water
pump for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.

We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it oper-
ates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.

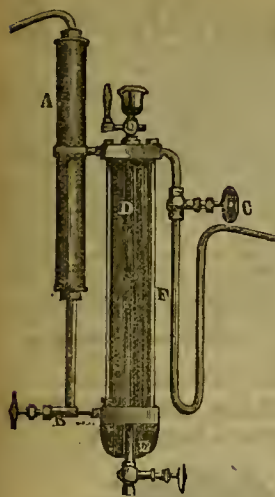
Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEP & BARBER, Stockton. Can be seen at
McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

For
Steam Pipes & Boilers

Hair Felting

Saves 25 per cent. For Sale by BERRY & PLACE,
4v22 112 California street, San Francisco.

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valve B and C.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Rolling Mills; Sauts Machines; Brand Dusters; Mill Picks; Mill Picks dressed; Millstones repaired and rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz. 2v22-lyns 41 First st., San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St. Best means yet discovered for saving fine particles of Gold. 20v21-1f

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels, of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Orosse and Blackwell, London, &c. &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-lyew

WALTHAM WATCHES.

In soliciting anew the public patronage of WATCHES of domestic production, the AMERICAN WATCH COMPANY respectfully represent:

That no fact in the history of manufactures is more completely demonstrated than that the best system of making Watches is the one first established by them at Waltham. That system always had the warrant of reason and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been ample and satisfactory. It is admitted on every hand—the evidence of daily observation and common reputation—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing more is needed, but that their sizes, shapes and appearance should suit the tastes of the people. As to all these conditions the American Watch Co. are now fully prepared to answer the exactions of the market. They confidently assert there is no longer any need for such reasons to import watches of any description whatever. Every size in ordinary demand, every shape and every variety of finish and decoration, may now be had. And as to price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

The Most Economical as well as the Most Reliable,

And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the latest improvements in design and finish, and evince the rapid progress the Company is making toward perfection in the art. Among these the new small size Watch, for Boys and young gentlemen, is to be specially noted. A very low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the means of boys of all classes. Price being considered,

No such Watch, in Quality and Beauty,

Has ever, in any country, been produced.

The "CRESCENT-STREET" FULL PLATE WATCH, added during the last year, is now made either with or without stem-winding and setting attachment. This Watch, in either form,

The Company Challenges all Manufacturers of all Countries

To beat or equal for its price. It is made with all the latest improvements in every part—improvements which improve—and which not only make it better for its purposes as a timekeeper, but will make it the great favorite with Watchmakers. This, the highest grade of full plate Watches made in this country, in size and appearance, in finish, and general excellence, is especially intended for and recommended to business men, and in particular to Railway and Expressmen, to constant travelers—in fact, to all live men who must be told by their Watches the correct time of day whenever they want it. All such men should have the

"American Watch Co., Crescent Street."

Counting on such destination for this variety of their manufacture, the company devote the greatest care to its construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake upon its success.

For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

ROBBINS & APPLETON,

General Agents for American Watch Company, 182 Broadway, New York.

13t-3a

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

No. 512 CALIFORNIA STREET.

One Door West of Montgomery..... SAN FRANCISCO.

J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, etc. 10v2f

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS.

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS, 4v16-3m

F. MORRIS,

Practical Assayer and Metallurgist,

Nos. 30 and 36 Fremont street,

SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 1v22-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lys

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical

CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

NEVADA METALLURGICAL WORKS

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 20v21-3m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYMOND,

25 Bond street, New York. 22v18t

Platinum Scrap and Ore purchased.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 10v20-3m JOHN F. LOHSE, Secretary.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday except d	Express Train Daily	MAY 1, 1871.	Express Train Daily	Passenger Sunday except d
4:00 P.M.	8:00 A.M.	San Francisco.....	3:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:55 P.M.
		San Jose.....	5:40 P.M.	
		Stockton.....	1:25 P.M.	8:35 P.M.
7:58 P.M.	10:15 P.M.	Sacramento.....	11:1 A.M.	7:00 A.M.
9:35 P.M.	2:10 P.M.	Marysville.....	9:10 A.M.	
	4:40 P.M.	Sesma.....	4:30 A.M.	
		Sacramento.....	11:45 A.M.	
	2:20 P.M.	Colfax.....	8:45 A.M.	
	5:25 P.M.	Reno.....	1:00 A.M.	
	1:15 A.M.	Winnemucca.....	4:05 A.M.	
	9:10 A.M.	Little Mountain.....	1:25 P.M.	
	12:00 M.	Elko.....	8:45 A.M.	
	4:40 P.M.	Ogden.....	5:15 P.M.	
	6:10 P.M.			

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *6:50, 8:10, 9:10, 10:20 and 11:10, a. m. 12:00, 1:30, 3:00, 4:00, 5:15, 6:30, 8:30 and *11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only). LEAVE OAKLAND, *5:15, *6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10 and 10:10 p. m.

LEAVE OAKLAND, *5:25, *6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruitvale only). LEAVE HAYWARD, *4:30, 7:00 and 10:45 a. m., and 3:30 p. m. LEAVE FRUITVALE, *5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

*Trains do not run Sundays.

T. H. GOODMAN, A. N. TOWNE,

Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York, Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh, Harrisburg, Philadelphia and New York

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.

Express trains on this line are equipped with WEST-INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

*All New England Passengers holding through tickets will be transferred, with their baggage, to Ball and Boat connections in New York without change.

Through Tickets via, this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.

T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, 4v22-1y San Francisco, Cal.

Yosemite

—AND—

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

C. P. R. R. Office, 422 California Street.

C. & N. W. Ry. Office, 445 California Street.

O. B. & M. R. R. Office, 214 Montgomery Street.

O. R. I. & P. R. Office, 208 Montgomery Street.

K. O. St. J. & O. B. R. R. Office, 306 Montgomery Street.

Manganese! Manganese!

We have on hand the Best and Purest article of Powdered Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,

CYANIDE OF POTASS,

And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco.

22v-17-3m

The Patent Wood Horse Collar

AND HAME COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never SWEATS or GALLS the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sores! Shoulders

In Three Weeks, Working Every Day.

For further particulars as to price of Collars, etc., apply to or address: WILDMAN & MARBLE, No. 30 California Street, San Francisco, Proprietors for the Pacific Coast. 19v22-2m

Agents Wanted.

THE QUARTZ OPERATOR'S HAND-BOOK,

BY P. M. RANDALL.

REVISED AND ENLARGED EDITION.

CONTENTS:

APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power, Assay—Mechanical Assays, Dry Way of Assay, Humid Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur.
BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW-PIPE—EXAMINATION OF MINERALS.
GOLD—Treatment of Ore Containing Gold: By Smelting: By Amalgamation: By Chlorination.
MILL—STAMP—SILVER—GOLD.
MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of.
MINES—VENTILATION OF.
QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Tappets, Cams, Cam-Shaft, Stamps, Dies, Screens, Guides, Grinders and Amalgamators, Wheeler and Randall's Excelsior Grinder and Amalgamator, Separators, Wheeler and Randall's Conoidal Separator, Concentrators, Wheeler and Randall's Eureka Concentrator, The Wheeler and Randall Tuber Concentrator and Amalgamator, Retorts, Gold Retorts, Silver Retorts, Crucibles, Ingot Molds.
REDUCTION AND CONCENTRATION OF ORES—DRY WAY.
ROASTING—Heaps, Furnaces.
SMELTING.
SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting; By Solution; By Amalgamation; Extraction of Silver from coarse Copper, Extraction of Silver from Copper Matte, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plate, Cupellation of Gold and Silver, Refining of Gold and Silver.
TABLES.

Sold, Wholesale and Retail, at publishers' rates, by DEWEY & CO., Proprietors SCIENTIFIC PRESS, Patent Agents, Engravers and Publishers, San Francisco. Cloth bound, 175 pages. Price, \$2.

For Steam Pipes & Boilers Hair Felting

For sale by BERRY & PLACE, Machinery Depot, 112 California street, San Francisco.

Leather Belting, Boiler Felt, Belt Studs, Steam Packing, Self Oilers, Linen Hose, Tube Scrapers, Lace Leather, Flaming Mill, and Engineer's Supplies, Etc.,

Page's Patent-Tanned Leather Belting

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.



For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Sturtevant's Pressure BLOWERS

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.



Blake's Patent Steam PUMPS

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$1.00
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.
GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. OGDON, Secretary. apl-3m.

HALLIDIE'S

Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH, Civil and Mechanical Engineer, 619 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-tf-16p

O. J. KING, B. KIMBALL, P. D. CODE,
P. D. CODE & CO.,
MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,

KETCHUPS, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p

WIESTER & CO.,

No. 17 New Montgomery Street (Grand Hotel), San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

DENTISTS, READ THIS.

Dr. Gillespie's New Patent Atmospheric Attachment TO DENTAL PLATES.

Can be applied to both New and Old Plates, so as to retain them firmly in the mouth while eating or talking: superior to any thing ever before invented, cost of applying it small, and the greatest improvement immediately felt by the wearer.

All who have badly-fitting plates can, by the application of this Attachment, wear them with perfect comfort and usefulness while eating, talking, etc. State, County and Office Rights for Sale.

PATENTED ARTICLES FOR AGENTS:

Richards' Corner Protector.

This is a novel and beautiful invention. It completely prevents dust from settling in the corners of rooms or stairways, and at the same time makes a very fine finish. They sell very readily. Send 50 cents for samples.

Finger Guards.

No lady who sews can afford to be without one of these Guards; and no Book Agent who understands his business will fail to order a good supply as soon as he sees them. It completely protects the left fore-finger from being pricked by the needle. Retail price, 50 cents.

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER,

Somewhat slower in its Explosion, which we recommend for

BLANK BLASTING, COAL MINES,

AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD. It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

Price, 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

20v22-3m16p

BANDMANN, NEILSEN & CO.,
General Agents, No. 210 Front Street.

CALIFORNIA CHEMICAL PAINT COMPANY,

MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE

Purest White, and 100 Different Shades,

MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination and sold by the gallon. It is warranted not to peel, crack, or chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

ap3-3m

G. W. OSBORN, } Agents.
C. F. BROWN, }

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871.

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 p. m., or by letter to the Corresponding Secretary, H. C. KIBBE.
Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf

Pacific Insurance Company,
No. 222 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire and Marine Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

PATENT BROKERS.—Inventors having valuable patents and needing reliable assistance in selling them should consult WIESTER & CO., No. 17, New Montgomery street, under the Grand Hotel, San Francisco.

Hubbard, Lippencott, Bakewell & Co.,



MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superseding all others.

Crosby's Patent Gang Saw Buckle; Lippencott & Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BRO. & CO. and LIPPENCOTT & CO.

Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special attention and be forwarded with dispatch.

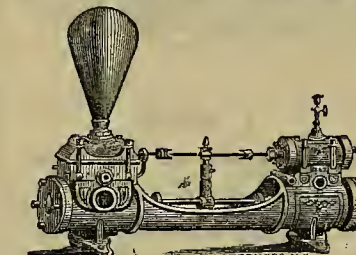
Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address HUBBARD, LIPPENCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



The Angel's Quartz Mine

Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liqueur, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING, Saw Smithing and Repairing ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

MANUFACTURER OF

SPAULDING'S Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

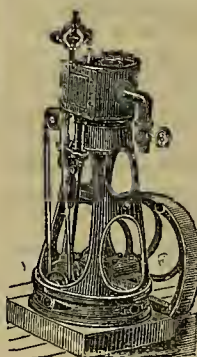
Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER LEATHER, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns



RIDER'S Automatic Cut-off Vertical Engines

Manufactured by the

Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, H. ANDREWS & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

BAIRD'S

BOOKS

FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 15, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

MAGAZINES.	P. An.	
Harper's.....	\$4 00	
Atlantic.....		
Godey.....		
New York Ledger.....		
Blackwood.....		
Home at Home.....		
Good Words.....		
Peterson's.....	3 00	
Arthur.....		
Lady's Friend.....		
Harper's Weekly.....	5 00	
Chimney Corner.....		
Literary Album.....		
London Society.....	6 00	
All the Year Round.....		
London Ill. News.....	15 00	

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.

CAL. FILE MANUFACTURING CO., 437 Brannan street, are now making Reaper and Mower Sections; also, Knives complete, suitable for all Machinery. Prices greatly reduced.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 3, 1871.

VOLUME XXII
Number 22.

Work at the City Foundries.

Work at the city foundries has been better of late than it has been for a long time previous. Indeed, if we had had a wet winter, with plenty of water for the minors, according to appearances, the palmiest days of the business would be equalled during the present season.

THE RISON WORKS have been crowded with business. They are making a large 20-inch engine for deep hoisting at the Crown Point mine. A similar engine is being made for the Yellow Jacket. Their work on the Mohonga has just been finished. This last is one of the most important things which has been done here for years, and we hope to give a detailed account before long. The Works have a large job on machinery for the City Gas Company.

In water pipes they have also had very much to do. They have made a large amount for the San Mateo Water Company, for the Woodland Canal and Irrigating Company, of Yolo County, and for the Los Gatos Manufacturing Company; also three or four miles extra of water pipe, of 37½, 30 and 22 inches in diameter. They are very busy manufacturing car-wheels, which they have made an important branch of their business. They have made a heavy steam winch for the Santa Cruz, and have had other jobs in large number. A large steam hammer has just been added to the works.

THE PACIFIC WORKS have lately completed a 15-stamp mill, with pans, settlers, etc., complete, for the English mining company in Troy District, Nevada; also a 20-stamp mill complete for the East Eureka Company, at Grass Valley. They shipped off, in the last steamer, a large amount of work for Mexico,—sugar machinery, engine and boiler, for Hermosillo, etc. For Eureka, White Pine and Owen's River, they are turning out considerable iron work for smelting furnaces. For the Metropolitan Gas Company, of this city, they are engaged on a heavy order for cast iron pipe, of 6, 8 and 16-inch diameter. Of the 8-inch pipe they have made about 1¼ miles, and of the 16-inch pipe some two miles.

THE GOLDEN STATE FOUNDRY has been making a large amount of amalgamating machinery, Stevenson pans, settlers, etc., for the Nevada Buttes Company, at Battle Mountain, Nevada. They have had orders for Knox pans to go to Plumas county and also to San Diego county. They have been engaged on an improvement of the Roberts ditching machine, which they have been constructing for the California Peat Company. They are making two or three thousand feet of water pipe for Oregon, and have considerable bridge work on hand, for Howe Truss bridges. Their foundry has been kept very busy on white iron for pan and stamp shoes and dies.

THE AETNA WORKS are also having a lively time. As we have previously stated, the Hyde Road Steamer was built at these works, which did themselves credit in the matter. The steam pump, invented by

Mr. Hanscom and used on this steamer, is having quite a demand, and several have been made for Oakland and other places for irrigating purposes. A 5-stamp mill is being built for the San Diego mines. A lot of shafting and engine are being turned out for the National Brewery, and a similar lot for the New York Brewery. Shafting, gearing, etc., are being constructed for saw-mills in Oregon, and castings for the saw-mill of C. A. Simpson, at Coos Bay. An iron house-front is being cast for Mil-

THE FULTON FOUNDRY is building a flouring mill for Arizona, with 14x24 inch engine and boiler 48 inches x 16 feet. It has just completed, for S. M. and A. Duncan, a 10-ton locomotive for hauling logs to their saw-mill, on Russian River, and also a lot of cars for the same. It has been turning out a large amount of castings for Selby's shot tower and smelting works, for the Golden City Chemical Works, the S. F. Chemical Works, and the Spring Valley Water Works. It has orders

lasting and less reliable and efficient.

Several years ago, Messrs. E. Ball & Co., of Canton, Ohio, determined to build their "World Reaper and Mower" on the same plan as that on which they would construct a lathe,—that is, to have every part accurately cut and fitted, so as to ensure ease of running and consequent durability, provided exposure did not defeat their plans. They determined to make a cut-gear harvester, and after months of labor and large expenditure, they completed, in 1866, the first article of the kind ever built.

The practical history of their machines has proved that an accurately constructed device of the kind will stand the wear and tear and exposure even better than rough-cast machines. They claim that they work better and more easily, and are far more durable than any others.

We have previously given a general view of the World Reaper and Mower. We now add an inside view of the machine.

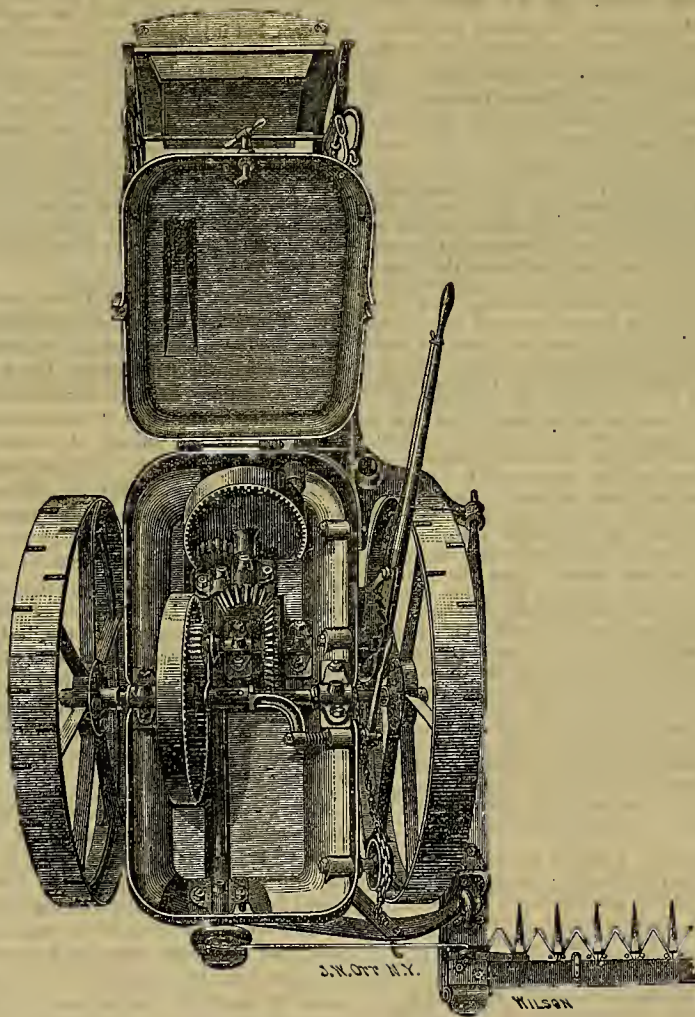
The materials are for the most part iron and steel. The gearing is one of its very chief points. As intimated above, this is cut, to avoid the imperfections of cast gear. The gearing is cast solid, larger than it is to be finally, and then turned down upon a lathe to the required size, which is fixed by an accurate gauge. Then the cogs are cut with the greatest exactness and bored with precision. The shafting and other parts are prepared in a similar way. The shafting is turned throughout its entire length, and fitted to the wheels (into which it is driven with vigorous force and then keyed) so firmly that wheels and shafting are as immovably united as if of a single piece.

The frame is a solid iron shell, into which the hearings and conformations for the gearing are cast. Its form is such as to combine strength, solidity and lightness. The bolt-holes, etc., as well as the bolts and nuts, are cut and turned, and all joints are planed so as to unite perfectly.

The gearing is protected from below by the shell case or foundation, into which it is fitted, and from above by a closely fitting hinged cover. Thus all the vital parts are secured from injury from water, dirt, and the like. The attachments, embracing the most improved devices in use, and some belonging exclusively to this machine, are built with the same excellence and of the best material, as are the other parts.

The result is a smoothly running, noiseless machine, which does not rack or jar, and which requires the minimum of power. The implement was introduced sometime ago on our coast, and has been warmly received. It took, moreover, all the premiums at the California State Fair of 1870, awarded for mowers and reapers.

The manufacturers are Messrs. E. Ball & Co., of Canton, Ohio. They have appointed as general agents for the Pacific coast, Messrs. Linforth, Kellogg & Co., 3 and 5 Front street, San Francisco. Persons desirous of further information may apply to either of the above-named parties.



WORLD REAPER AND MOWER—INSIDE VIEW.

ton S. Latham, for a building on Market, between First and Second streets; also one for the Odd Fellow's Hall at Petaluma. Besides these, work is being done for the State Capitol, and on various jobs.

At the MINERS' FOUNDRY, work is going on briskly. The casting of the columns, etc., for the State Capitol, at Sacramento, is still employing a large number of men. Quartz crushers are being built for Mexican mines; and on the Blatchly drill several slight modifications are being made, and a machine of smaller size, to weigh about 75 lbs., is being constructed. In addition, the establishment has a large number of orders for various work.

for some 45 tons of shoes and dies for Silver City, Idaho; and is making a lot of pans and a White (cylinder) roasting furnace for the Citizen's Milling Company, of Austin, Nevada. A large sawmill is being built for Ione City, Amador county, and 12 sets of car wheels for the Coos Bay Mining Company. The works are kept running day and night.

The World Reaper and Mower.

It has been a common source of complaint among farmers, that agricultural machinery is not so well made as is that of the shop,—that it is rougher, less

MECHANICAL PROGRESS.

OZOKERIT.—This is a vegetable wax from the Caucasus. Its manufacture into blocks for candle-making, is patented in England, and the process, as carried on at Battersea, by the Messrs. Field, is thus described by *Engineering*:—"Commencing at the river end of the premises, we found a large store of the ozokerit in two conditions, in the one as dug from the earth, and in the other as roughly melted down for convenience of storage in transit. In the latter condition it forms a dark-colored mass, and is packed in barrels, the native or unmelted ozokerit being sent over in canvas bags. From the stores the crude material is conveyed into melting tanks, holding from 2 to 3 tons each, and where it is melted down by means of a steam coil. From these tanks, which are situated in a gallery some 15 ft. above the ground level, the ozokerit is run off by gravitation to a series of stills placed outside the main building, and holding from 2 to 3 tons each, and in which it is distilled over, partly by steam, and partly by bottom heat. The dirt and bottoms from the crude ozokerit are run off from the melting tanks into another set of tanks beneath them, where they are remelted, the finer products being afterwards distilled over. The ozokerit comes over from the stills in the form of an oily distillate, which is run from the condensers into moulds and allowed to cool. This gives a deep yellowish wax-like substance of a spongy nature, the pores being filled with oil, which exudes under a slight pressure. These cakes are packed between oil-skins and canvas cloths and placed in hydraulic presses, of which there are three of large capacity. The pressed cake after removal is put into reheating tanks and again melted down, and pumped from these tanks by a steam pump into the acidifiers where it is treated with a sulphuric acid. These acidifiers are steam jacketed and are fitted with revolving agitators by which the ozokerit and acid are agitated together for a certain time, after which the mixture is allowed to settle. After settling, the purified ozokerit is drawn off from the lower part of the acidifiers—the acid remaining on the top—and run into vessels which are heated by bottom heat. This is the final heating, and from these vessels the fine stuff is drawn off into moulds, the result being a hard white wax, the melting point of which is 140°, that of paraffine wax being only 128°. These blocks are sent to Messrs. Field's works at Lambeth, and from them the now well-known ozokerit candles are made."

RANSOME'S NEW STONE.—*Engineering* for May 5th gives the results of experiments made to ascertain the power of resistance to crushing, possessed by this material. Sixteen specimens, cubes of four inches, prepared ten weeks before, and therefore well hardened, showed an average strength of 51 tons. The average strength of Mr. Ransome's old stone, at the age of 3 months, was 30 tons, on the four-inch cube. The same journal of the preceding week says a new and doubtless important suggestion has been made in regard to the use of this stone for caissons in the construction of hydraulic works. A calculation is gone into which shows it to have an advantage of nearly 50 per cent., as regards cost, over iron for the same purpose.

PROGRESS AT HELL GATE.—The extent to which the ten headings radiating from the vertical shaft have been pushed, amounted in all to 529 feet on May 7th, averaging some 53 feet each. The headings average 20 feet in height by 13 feet in width. The rock is extremely hard. Most of the drilling has been done by Cornish miners with hand drills. A diamond drilling machine has been at work since January in one of the headings. There will ultimately be concentric galleries crossing the headings at intervals, and the piers between these will contain T-shaped chambers, to receive the final charges of powder, which will be simultaneously fired by means of electricity.

NEW COMBINATION BANK LOCK.—At the meeting of the Polytechnic Club, April 27th, was exhibited a lock which is thus described:—"The outside of the lock has two knobs or handles, the larger being set to any given position by a circle graduated to 300 divisions. In the interior of the lock are four wheels, each capable of 1,380 positions, (having forty-six teeth, and set by a pinion with ten teeth moved by the graduated handle,) affording, therefore, more than three millions of millions of changes. The pinion is connected separately with the four wheels and with the ratchet which moves the bolts by the smaller knob. As the bolts cannot be opened unless all four wheels are in exact position, and it cannot be known on trial which is out of position or whether any one or more are in position, and as it cannot be known except by trial of the bolts whether the wheels are all in position or not, there is no chance to "feel," and no mitigation of the full number of trials to be made. Yet the lock may be closed in an instant; and in case the lock is to be closed for a short time only, as in a safe during office hours, one wheel only need be thrown out of position in locking, so that it may be opened in five or six seconds with a knowledge of the mode of locking, and yet a person not knowing that it was so locked would probably disarrange the other wheels, involving all the changes. The combination can be easily changed, by changing the position of a screw in one or more of the four wheels."

HOOPER'S INSULATION OF SUBMARINE CABLES.—It is said that the Hooper core, from its superior insulating properties, will transmit thirty per cent. more words in a given time than a gutta-percha core. The following description of the manner of preparation is from an article in *Nature*, by N. J. Holmes:—"The copper conductor, after being tinned, is coated with pure india-rubber applied in the shape of a ribbon, lapped spirally round it. Next, two strips (one laid above and the other below) of india-rubber, chemically prepared to resist the action of sulphur, and called the "separator," are applied so as to completely surround the first rubber-covering, as it were with a tube; a pair of grooved die-wheels giving the contour, and at the same time regulating accurately the gauge of the core. Exterior strips are then similarly applied of a compound of rubber and a small percentage of sulphur. The whole is then lapped round with water-proof felt tape, and exposed for some hours in an oven to a heat of about 383° F. By this process the three successive coatings are welded into one solid, dense, homogeneous mass, having its distinctive features preserved as regards the individual character of the several layers. Thus the heat, in driving off the sulphur from the outside coating, has converted that envelope into an indestructible vulcanized rubber jacket. The second layer, or "separator," has intercepted the passing of the sulphur by reason of its chemical properties, while at the same time it has allowed an infinitesimal trace of the sulphur to combine with the internal coating of pure rubber round the conducting wire, sufficient to change its character into an indestructible and non-liquifying material, without its becoming in any way vulcanized."

DESACHY'S FIBROUS PLASTER.—A great portion of the interior architectural decoration of the present day is simply sham. But it answers every purpose. *Papier mache* (pressed paper), and *carton pierre* (stone made of card-board), are largely used. But the *London Architect* notes another material, named in the heading of this item. We quote:—"It is a combination of ordinary fine or common plaster and canvas. The plaster is cast very thin, less than one-fourth inch, in a mould, and then upon the back of it is laid the canvas, which becomes incorporated with it as it sets; the shape is supported by light strips of wood, laid on at the same time; and for the plain mouldings and large panelling, this system gives all the usual effect, combined with extreme lightness and facility for fixing. As an instance, we saw a large circular moulding, more than seven feet in diameter, for surrounding a light, made in one piece, ready for fixing, no portion of the face of which was more than a quarter of an inch in thickness. We may mention the ceiling of the library of the new Record Office, as an instance of its use, the apparently massive Gothic ribs, forming the groins between the skylight, being of this material, screwed to wrought-iron girders inside, which really do the work."

SCIENTIFIC PROGRESS.

THE MECHANICAL CORRELATIVE OF THOUGHT.—Following is an extract from Prof. Tyndall's lecture on the "Scientific Uses of the Imagination":—"The philosophy of the future will assuredly take more account than that of the past of the relation of thought and feeling to physical processes; and it may be that the qualities of the mind will be studied through the organism as we now study the character of a force though the affections of ordinary matter. We believe that every thought and every feeling has its definite mechanical correlative; that it is accompanied by a certain separation and remodelling of the atoms of the brain. This latter process is purely physical; and were the faculties we now possess sufficiently strengthened, without the creation of any new faculty, it would doubtless be within the range of our augmented powers to infer from the molecular state of the brain the character of the thought acting on it, and, conversely, to infer from the thought the exact molecular condition of the brain. We do not say, and this, as will be seen, is all-important—that the inference here referred to would be an *a priori* one. But, by observing, with the faculties, we assume, the state of the brain and the associated mental affections, both might be so tabulated side by side that, if one were given, a mere reference to the table would declare the other. Our present powers, it is true, shrivel into nothingness when brought to bear on such a problem, but it is because of its complexity and our limits that this is the case. The "quality" of the problem and the "quality" of our powers are, we believe, so related, that a mere expansion of the latter would enable them to cope with the former. * * * The territory of physics is wide, but it has its limits from which we look with vacant gaze into the region beyond. Whence come we; whither go we? The question dies without an answer—without even an echo—upon the infinite shores of the Unknown."

THE NUMBERING OF RAPID VIBRATIONS.—Prof. Tyndall exhibited at a late lecture before the Royal Institution, an instrument called a syren, for determining the number of vibrations, in a given time, of an insect's wing, or any other vibrations which produce a musical sound. A current of air produced by a bellows is driven through a tube so constructed that the current is cut up into puffs by a rotating arrangement, giving a musical note which is more or less high, in pitch, as the puffs are more or less rapid. An index shows the rapidity of the rotation, and therefore of course the number of vibrations of the body of air; and it is therefore only necessary to urge the rotation until the pitch of the tone produced agrees with that of the sound produced by the vibrating body, when the index points out the number of its vibrations in a second.

NEW PYROMETER.—At the late *soiree* of the Royal Society, in London, C. W. Siemens, C. E., exhibited a pyrometer, in using which a spiral of platinum wire is heated in a furnace; as the wire grows hotter its power of resisting the passage of a current of electricity increases, hence the temperature of the furnace can be determined by means of a galvanometer, which measures the electrical resistance of the platinum spiral.

VARIABILITY VS. NATURAL SELECTION.—Edward Fry, in a communication to *Nature*, remarks upon the showing by Mivart that Darwin has ignored the existence of the law of Variability in favor of his pet law of Natural Selection, and attributed to the latter exclusively, the origination of new species. Mr. Fry agrees with Mivart in his demonstration that, in the struggle for existence, the numerical superiority of the original form gives it an immense advantage over the new variation; and adds, that the useful variety has not only this advantage to overcome, but has also to overcome the tendency to reversion to the original form. He goes into a course of

reasoning by which he shows, that in the second generation the chances against the continuance of the new variety are 79 to 2; and remarks as follows:—"These chances express the force of the tendency against which Natural Selection has to operate, assuming that the numbers of each variation at starting were equal to those of the original form; but this is, on the assumption that variation is accidental, infinitely removed from the truth; and if the difference between the numbers of the original form and the variation be introduced into the case, the odds are indefinitely increased against the accumulation of a casual variety. None of these observations go to show that Natural Selection does not exist (I have no doubt that it does), but they show that it has a most uphill game to play, and one in which it is improbable for it to win without help from some other principle."

POISON OF THE COBRA.—At a late meeting of the Boston Society of Natural History, Mr. George Seavey, who has been attached to the India Museum at Calcutta, and assisted Dr. Fayrer, Professor of Surgery in the Medical College there in his experiments upon the venomous snakes of the country, read an account of one performed upon the Cobra. We find it in the *American Naturalist* for May. The inguinal fold of the skin of a dog was held by two pairs of long-bladed forceps in such a manner as to include a triangular piece of about three inches in length. The Cobra's fangs were applied to the middle of the free edge, and with a sharp scalpel, held in readiness, the fold of skin was at once cut out, and yet the dog died from the effects of the poison in fifty-nine minutes. Dr. Fayrer, in his report, made the following comments:—"The bitten part was not merely excised, as we speak of excising the parts around the spot which the fangs had penetrated, but the fold of skin into which the fangs had injected the poison was removed within a second after the bite; for the knife had entered almost before the fangs had left. In fact, it could not have been done more rapidly, and yet, within one hour, the animal was dead from the effects of the poison. The infinitesimal portion of time during which the Cobra's fangs were inserted in the tissues was sufficient to have sent the poison through the circulation beyond the reach of incision."

COLOR OF THE SKY.—The following is from Mr. Glaisher's "Travels in the Air,"—just published by Bentley, London:—"The azure color of the sky, though resembling the blue of the first order when the sky is viewed from the earth's surface, becomes an exceedingly deep Prussian blue as we ascend, and, when viewed from the height of six or seven miles, is a deep blue of the second or third order. 2. The maximum polarising angle of the atmosphere, 45°, is the same as that of air, and not of water, which is 53°. 3. At the greatest height to which I have ascended, namely, at the height of five, six, and seven miles, where the blue is the brightest, the air is almost deprived of moisture. Hence it follows that the exceedingly deep Prussian blue cannot be produced by vesicles of water, but must be caused by reflection from the air, whose polarising angle is 45°. The faint blue which the sky exhibits at the earth's surface is therefore not the blue of the first order, but merely the blue of the second or third order rendered paler by the light reflected from the aqueous vapour in the lower regions of the atmosphere."

INGENUOUS APPLICATION OF THE SPECTROSCOPE.—Says the *Quarterly Journal of Science*:—"The water used by the people of a crowded court, amongst whom several cases of typhoid fever had appeared, was drawn from a rather shallow well, and was highly charged with various unoxidized compounds of nitrogen. It was suspected that, from some defect, the contents of a public urinal obtained entrance to the well. The fact that the well-water contained seven times as much common salt as the normal water of the vicinity was some confirmation of the suspicion. Prof. Church obtained absolute proof by the following method. He introduced two grammes of a lithium salt into the urinal, and, two hours later, was enabled readily to detect with the spectroscope the presence of lithium in a litre of the well water, which by previous examination had shown no trace of this substance."

CORRESPONDENCE.

Wastage of the Precious Metals.—No. 1.

BY ALMAHIN B. PAUL.
[Written for the Press.]

The fact that a high percentage of the precious metals is lost in the manipulating of ores by the present modes of working, no one for a moment questions; but when it comes to any special data, but little has been presented to the public. Some assert their loss to be only a trifle, while others, who more closely investigate, know it to be greater than it should be. Shakespeare says, "He who knoweth not what is lost, loseth nothing;" and in that sense, some lose nothing. Having closely investigated the subject for the past two years, I find the average loss, especially in California, so great, that really I think, if there is not more care taken in the husbanding of our riches, when extracted from the earth, that the Government should take measures to do so.

Our Gold Milling Defective.

There is an idea that all gold is readily amalgamated, and therefore it is not necessary to be so particular; consequently there is an unwarrantable degree of carelessness. I have learned by practical working in both gold and silver that a higher percentage of silver is more readily obtained by the known system of working for silver, than the percentage of gold by its most advanced system, showing that gold milling is far behind silver working, although as before remarked, gold is considered so "readily amalgamated." Yet to adopt the systems for gold that are used in silver, affords no especial relief.

That my readers may have some data, as a corner-stone, to build their ideas upon, before I go too far in my general observations, I will give a few tests of the many which I have made in the last two years, and intersperse with them, as additional evidence, tests of other parties. And here I would call the reader's especial attention to the fact of a goodly percentage of silver in all of our California ores; and I will also remark that the assay of tailings does not even show what percentage of silver the ores may contain, as some may be in the form of chlorides which move off in the water. But to the tests of our gold mining.

TEST No. 1.—Average yield of ore in mill, \$18.60. Wastage after complete washing, including concentrating.—Silver, \$3.14; Gold, \$10.04; total \$13.18.

TEST No. 2.—Same mill tailings 350 feet from mill.—Silver, \$3.93; Gold, \$5.02; total, \$8.95. Showing that a percentage secreted itself in its passage down stream.

TEST No. 3.—Average yield of 150 tons, \$3.50. Assays of tailings carefully sampled.—Silver, \$6.28; Gold, \$13.55; total, \$19.83. Silver, \$6.28; Gold, \$8.79; total, \$15.07.

The above bad results were occasioned by the extreme fineness of the gold. And even the above does not show the full wastage. To corroborate this, I will give some admirable tests made to get at the question of "float gold."

A friend of mine, having somewhat similar ideas to my own, concluded to, test the question of float gold as well as he could at the time, and embraced the opportunity of cleaning up the slum from a water tank for supplying the battery, where the water was used over and over again in consequence of its scarcity. The ores were worked after the usual wet method for gold ores. The water and pulp were first passed through a sluice to tailing bed, 190 feet. The tailings being deposited, the water was drawn off at the top, flowing into a well, where it was raised, and passed through a sluice 120 feet to tank at battery. This is the tank cleaned up.

The residue was amalgamated in a tub quite rudely, but with a large body of mercury and chemicals. The result was \$33 in silver and \$56 in gold, making a total of \$89 per ton. It will be observed that there were two chances for the metals to precipitate previous to reaching this tank:—first, in the tailing reservoir, and second, in the well.

Other Important Tests.

This "float" metal question is further established by a system of tests made by Mr. G. McDougal, of Grass Valley, who very kindly allowed me to extract the same from his books of tests. And here let me say that these tests are made from water flowing from mills at a point three-fourths of a mile below the mills.

1st test of 20 gallons of water gave.....	1.10 cents
2d " " " " " " " " " " " " " " " "	2.13 "
3d " " " " " " " " " " " " " " " "	.95 "
4th " " " " " " " " " " " " " " " "	.83 "
5th " " " " " " " " " " " " " " " "	1.02 "
6th " " " " " " " " " " " " " " " "	1.13 "
7th " " " " " " " " " " " " " " " "	.97 "
8th " " " " " " " " " " " " " " " "	1.12 "
9th " " " " " " " " " " " " " " " "	1.07 "
10th " " " " " " " " " " " " " " " "	.83 "
11th " " " " " " " " " " " " " " " "	1.01 "
12th " " " " " " " " " " " " " " " "	.90 "

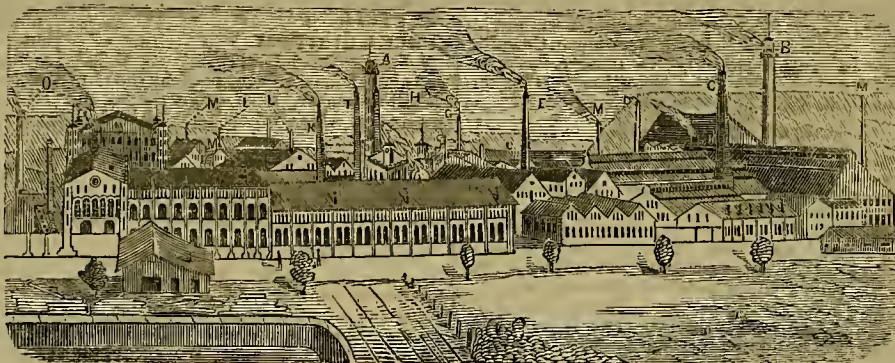
Average.....1.18 "

It was estimated that 576,000 gallons of this "muddy water" flowed by every 24 hours, which, according to these tests, contain \$339.84. Let us carry this calculation a little further.

The average amount of ore worked in 24 hours was given as 58 tons. This shows that \$5.85 per ton "floats," which probably is at least 20 per cent. of the yield. Let us run this loss a little further. Suppose the two mills run 250 days in each year, which is not unreasonable, and we have a yearly loss in "float gold" alone, to say nothing of loss by imperfect pulverization and general wastage, of \$84,960.00 from two single mills!

Extend the test as far as you may on a smaller or larger scale, and wastage stares one badly in the face at every turn.

I made a test of 50 pounds of tailings for a party who took them a mile below his mill, and the return was 55 per cent. of what was



KRUPP'S STEEL WORKS AT ESSEN, PRUSSIA.

his average working. I also made a test of three-fourths of a ton, and the result showed the loss in the mill-working to be 63 per cent. I could write every column of your paper full of tests corroborative of the fact of the enormous loss in the milling of our gold ores. But these given should be as convincing as more; and I hope enough so, as to awaken a desire for investigation at least. From what attention I have given the subject in actual labor, as well as collecting all the data attainable from others, I know that the loss as a whole is fully 50 per cent., and, in the majority of mills, all of 60 per cent. of what the ore contains.

We Must Consider This Question.

I can now ask: Is it not time that we were beginning to consider this question of the wastage of the precious metals? It is this that produces so many failures, such utter loss of capital. Investments are made in mining on assays of well sampled ores of the mines, but not until machinery is running, do they realize the fact that only a small percentage of the metal is saved, and a failure too often is inevitable. There are a number of institutions in California that have proved grand successes. They have been exceedingly fortunate, but their success may be attributed to having ores of high value, not to gaining a high percentage of the metal. For take California mills, and the first class are all on a par in wastefulness, while the poor are not to be considered at all. My tests are from the best, and I leave the reader to fancy what the poorer ones may be.

California in twenty-one years has produced over \$800,000,000, and wasted \$1,000,000,000 more!! For the wastage in "sluicing" is greater than that in quartz mining. The Sacramento river in ages to come, and when it shall be upheaved as were the Sierra Nevada, will gladden the heart of some straggling miner with an auriferous stratum, the wealth of which will throw all histories of Potosi's, Comstock's and Del Rey's combined, into the shade.

To remedy the evil, more care must be taken. The fact is, we are too much of

a rushing, reckless people; we have not got sobered down yet; and I don't know as we ever will. It's rush, rush, and make too little solid, permanent, profitable headway. We have oceans of wealth surrounding us, and ought to be the most opulent, refined and wealthy land on earth,—the load-stone for God's creation. But how is it, and why is it, that we are not?

Krupp's Steel Works.

(Continued from Page 323.)

In consequence of incomplete drawings, I cannot continue this description, but will add a few remarks on Krupp's performances in general. The accompanying photograph gives a view of the enormous establishment. The letters denote the different buildings as follows:

A, the water tower from which the water runs to the boilers. B, the chimney for the two big steam hammers, "Max" and "Frederick." A third hammer is called "Hercules." The two first are valued at \$600,000 each. C, the rolling mill for making rails and the plates to connect them. D, the chimney of the puddling works. E, the hammer works for railroad tires. F, chimney for steam hammers or railroad tires. G, chimney of the locomotive wheel factory, in which Mr. Krupp worked himself at the beginning of his career. H, Krupp's residence. J, melting furnaces for cannon and for crank shafts for steamboats. K, rolling works for

The large crane is able to lift 1,500 hundred weight, and possesses a bearing of 700 feet. A cannon of 400 hundred weight has been ordered by the Japanese ambassador. For making the ingot of such a heavy piece, 800 men are present, and the work is done in less than 10 minutes; yet the men have to stand such a heat that two hours are allowed them for recreation.

The largest piece of ordnance yet made in this establishment was for the Russian government, and has a weight of 500 hundred weight, and throws a ball of 600 pounds.

A new rolling mill rolls steel plates 14½ feet wide and 1 foot thick, the working of which requires 50 hoilers and 2,000 horse power.

Everywhere new buildings are in progress for the workshops. Thirty-six Belgian brick machines are kept running in the summer time, each of them making 900,000 bricks, amounting in the aggregate to 32,400,000 bricks.

Krupp has bought a tract of land of 600 acres, on the small river Ruhr, about five miles from Essen, for the purpose of building a country seat there. This was necessary, for within a less distance, the ground is shaken incessantly by the blows of the hammers, as by the thunder of heavy artillery.

The above is the description of the steel works of Mr. Krupp's at Essen, of which we have all heard so much, and which have been able to see from the inside except the workmen. The description seems to close somewhat abruptly, but it appears to have been written by a man who, as any process, or piece of information struck him as novel or interesting, had jotted it down, and then had made up his letter from these jottings. I hope that it may give your readers as much pleasure to peruse as it has given those who were allowed an inspection of it here.

W. H. DAFFAIN.

Frankford, Phila., Pa.

Right and Left.

EDS. PRESS:—In a late number of the PRESS, I noticed an interesting article with this title, and with a pretty full discussion of the subject. The lecturer was entirely right, as it seems to me, in the view of the case which he took, viz:—that the tendency of the body was toward the right; and not, as the correspondent stated, to the left. Now, if the writer of that article would take the trouble to experiment a little on the matter in hand, we think he might come to see differently. We have tried it practically and find that the results go to strengthen this opinion. It was done in this manner:

When walking with a friend one day, I requested him, without telling him my object in so doing, to place himself in line with two fixed objects, a tree and a post, and, having done so, with his eyes shut, to endeavor to come as near the post as he could. He did so, and I watched him closely. The experiment was repeated several times, and then I did the same thing myself, requesting him to note to which side my steps diverged. Another time, when out walking with the same person, having told him the object of our experiment, it was tried once more on a piece of ground more level than that used at first.

In all these trials, to the number of 15, only four showed a tendency in the body of the walker to the left, and one of these four was caused, I am inclined to think, by unevenness in the ground. Such are the facts, but I do not wish them to be regarded as entirely conclusive, but as strong evidences.

CURIOSITY.

MISSOURI NARROW GAUGE RAILWAY.—A thirty-mile road is in process of construction from Cape Girardeau to the iron banks in Bollinger county, Missouri, of which one mile is finished. The cost of this mile, laid with T rail, has been \$6,537.60, and the cost of the entire thirty miles is estimated at \$213,000, allowing \$16,875 for culverts, bridges, &c. The road bed is six feet wide on top, following the rise and fall of the ground where it does not exceed seventy feet to the mile, and winding round high hills and steep grades in curves of 200 feet radius, less than one-third that required for the ordinary gauge. Rolling stock sufficient for the requirements of such a road—say two locomotives, four passenger cars, thirty platform cars, and ten box cars—are estimated at \$27,000 additional, making a total cost for road and equipments of \$240,000.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

DIAMOND CLAIM.—*Miner*, May 20th: This property, a north extension of the Tarehish lode, is likely to be again worked. Messrs. Wells and Bolden, the owners, after locating it three or four years ago, ran 60 or 70 feet of tunnel, performing sufficient work under the law of the District to make perpetual title, and as times were dull, went out for work and to look out for capital to open up their claim.—Mr. Wells will probably the coming summer resume operations.

AMADOR COUNTY.

CONEY.—*Ledger*, May 27th: The work of sinking this mine has been stopped, and they are now drifting. At no time have the indications looked as encouraging.

CALAVERAS COUNTY.

WHISKY SLIDE.—*Chronicle*, May 27th: Work has been resumed upon the Matthews & Foster mine. We understand that the mine has been conditionally sold, and the parties who contemplate purchasing are taking out rock that prospects first-rate. It will be hauled to Sandy Gulch for crushing. The quartz is from a shaft 130 feet deep, at which point the lead shows six feet in width. Hardigan & Co., in the same vicinity, are getting good quartz. Their new mill will be in readiness in three weeks.

WHAT CHEER.—The work of erecting machinery is progressing rapidly, and it is expected that it will commence active operations early next week. As soon as the hoisting works are completed the incline will be pushed ahead, day and night, until the channel is reached.

RICH ROCK.—Very rich quartz is being taken from the mine of Horehner Seigler & Co., at Mosquito Gulch. We have seen specimens. The company have been crushing rock of superior quality for some time, but it is expected that the next "clean up" will throw all into the shade.

SULPHURET WORKS.—The reduction works attached to the Palomo mill, in Lower Rich Gulch, are a complete success. At first, owing to some defect trouble was experienced; latterly, the difficulty has been obviated and everything works admirably. The rock from the mine contains a large percentage of sulphurets which average \$100 per ton.

ELDORADO COUNTY.

QUARTZ.—*Cor. of Placerville Democrat*, May 27th: The Eureka on Thursday struck a very rich place which continues to improve as they advance. The ledge is five feet in width at that point. The Taylor Co., having completed their shaft, run a drift twenty feet when they struck the ledge, richer than before. They now have a well defined ledge of five feet in width at a depth of two hundred feet, with good walls and every indication of a permanent ledge, which shows gold in every part of it. They intend to run through the mill one hundred tons, as a trial, before putting up any machinery. They talk of putting up a twenty stamp mill, and sink the shaft two hundred feet deeper.

NEVADA COUNTY.

ROUGH AND READY.—*Grass Valley Union*, May 26th: This old mining town has a prospect of again being lively. Extensive claims have been located and in one case the owners have been for some time hydraulicizing after an outlay of some thousands of dollars.

NORTH STAR.—Same of 27th: The shipment of bullion to San Francisco on the 19th, amounted to \$6,290, or \$1,000 more than for the same time last month.

GOLD HILL MILL.—We learn from Mr. Crase, Supt. of this mill, that it is kept in active operation crushing rock from leads being prospected; the rock this season has averaged far more than rock from the same localities hitherto. Twenty-five tons from the Seven-Thirty ledge, showed a yield equal to any from it in days past.

NORTH BLOOMFIELD.—*Transcript*, May 30th: The tunnel to open the claims to the hed rock, will be run from the Yuba river, and will reach the claims at a point estimated 200 feet below the hed rock, giving ample fall for working. The company is still prospecting. In shaft No. 1, they have run 500 feet each way, demonstrating the channel to be 1,000 feet wide. Here they have taken out as high as \$1,000 a day, the pay gravel being equally distributed. In No. 2, they have struck the mine and in No. 3, they are still sinking, having gone down

160 feet, and finding prospects sufficient for hydraulic mining all the way down. The dam at Bowman's is heavy enough to keep the ditch full, and 8,000 inches now runs to waste. The ditch is running 2,800 inches. They are using three or four pipes with six-inch nozzles, day and night. Black, and Gay & Poquillon are also running and doing well. The French Corral and the Yuba Companies are prospecting on the line of the Bloomfield and Relief Hill channel. The former sunk 40 feet and struck hed rock, and now propose to run an incline to the channel. The Yuba Co. have sunk 100 feet through pipe clay all the way, except a stratum of quartz sand at 80 feet, containing charred wood with some petrifications.

OMEGA.—Mining prospects are excellent. Seven or eight hydraulic claims are worked and two at Diamond Creek. Other companies would be at work, but water can not be obtained. The amount used per week at Omega is 10,500 inches.

The miners in the vicinity of this city are piping away at a lively rate. The amount of water run is 900 inches per day of ten hours. There is a larger demand than the ditches can supply.

EUREKA TOWNSHIP.—The Trinta Co. has been organized for the purpose of opening the channel at Roscoe's Ranch, supposed to be a part of the blue lead, but never prospected at this point.

RELIEF HILL.—The miners are all employed, five claims being worked. The Eagle and Waukashaw are drifting and averaging \$10 to \$35 per day to the man. The Star and Union mines are worked by hydraulic, and the Waukashaw both by hydraulic and drifting.

WILLOW VALLEY.—Some two or three quartz mines are being worked, the Oriental and Murchie mills having been put in operation. The Black Republican Co., after a crushing of fifty-five tons, cleaned up \$25 per ton. The ledge has paid better, but never looked as well as now.

PLACER COUNTY.

GREENE.—*Placer Herald*, May 27th: We prospected a cack of specimens from the mine a few days ago. At the top we found rock about half gold, a little further down the rock showed seven-eighths gold, and from there to the bottom of the bag, say three or four inches it was pure gold, in plates, chunks and slabs.

COLFAX.—*Stars and Stripes*, May 25th: A rich sample recently taken from the Rising Sun mine was sent to J. H. Neff as a specimen of the ore they are now taking out. It is predicted that the yield of the Rising Sun for the current month will exceed that of any previous month.

RATTLESNAKE BAR.—The came has the following: A letter from our correspondent, too late for publication, says that two men, with a rocker last week washed out \$135.

SIERRA COUNTY.

Rich.—*Nevada Transcript*, May 28th: Manuel Gutierrez, an old prospector at the Sierra Buttes, and the discoverer of the Reis, Hawkeye, Independence and Eureka, has recently opened a very rich mine, a specimen from which, on our table, shows a considerable amount of free gold. An assay made in this city, shows it to be worth \$27 per ton. As the ledge is six feet thick, and has only been opened to the depth of 12 feet, this is very rich. On the 13th inst., \$500 in gold was taken out in 10 hours.

The *Sierra Age* of May 24th, says that work will be resumed at the Brush Creek mill and mine as soon as a sufficient force of workmen can be obtained.

SISKIYOU COUNTY.

LITTLE HUMBURG.—*Yreka Union*, May 24: We learn from J. H. V. Barry that the miners where they have commenced to wash up, are doing well. There is a large amount of excellent mining ground still unworked. The drawback is the limited supply of water. Mr. Barry is prospecting a quartz ledge on Punch Creek. He obtains good prospects.

TRINITY COUNTY.

INDIAN CREEK.—*Journal*, May 27th: Mr. R. Silcox has crushed and washed up all the quartz taken out of his ledge on Indian Creek last fall, and tells us the result exceeded his expectations. He has just finished timbering the shaft, put the mill in complete order, and is going to run his mill night and day as long as he can find more quartz of the same sort.

YUBA COUNTY.

HYDRAULIC MINING.—*Appeal*, May 25th: The hed of a former river has been traced from Timbuctoo to a few hundred yards above Sucker Flat, and the richest pay gravel found. Hydraulic mining in this vicinity is not a chance business, but a

certainty. The last clean-up of the Smartsville Co., gave hullion \$53,595. Of this \$15,558 was clear profit. The Blue Point Co. cleaned up 100 of its 350 boxes, and got \$42,000; net profit \$20,000. It cost, however, \$146,000 to run the tunnel. The remainder of the boxes will give, in July, \$80,000 to \$100,000. The Blue Gravel Co. works a diamond drilling machine with four drills, and uses Giant powder.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—*Cor. of Elko Independent*, May 27th: The El Dorado has a ledge $4\frac{1}{2}$ feet wide and all mineral that as taken from the ledge mills \$225 per ton. The Independent mine is working only eight men, as they have no opportunity to have their ore worked. The ore requires roasting. Davis' mill is useless at present, the crushing apparatus being almost worthless. That will be soon remedied, the mill having changed hands. The Pride of the West owned by the Hendy Co., bids fair to turn out well. The incline is down sixty feet, and shows rich rock and plenty of it. About 15 or 20 men are "chloriding," across the river, making four to nine dollars a day.

ELY DISTRICT.

BULLION.—*Record*, May 25th: Wells, Fargo & Co. shipped, on May 22d and 24th, by the way of Salt Lake, the following amounts: Meadow Valley Co., \$10,779.60; Raymond & Ely, \$13,879.37. Total, \$24,658.97.

ESMERALDA.

PINE GROVE.—*Carson Register*, May 28th: Yesterday's stage brought in from that section eight sacks of bullion. Arrangements are being made to start up the Keen mine with a full force.

EUREKA DISTRICT.

STRIKE.—*Sentinel*, May 23d: J. B. McGee and Thomas Lynch, between the Otho and Bullwhacker, have exposed a body of ore six feet wide, which they have traced for many feet. It assays high. A sale of 50 feet was made to C. H. Robinson for \$1,000 on the day of discovery.

Seven assays of ore from the El Dorado mine gave in silver and gold, an average of \$289 per ton.

NINETY DAYS.—The assessment roll shows for the quarter ending April 31st, there were worked 3,020 tons, and 1,283 pounds of ore, which gave \$270,629.06 in value. There is more than double this amount on the dumps. We need half a dozen furnaces that will buy ores, and pay a fair price for them.

JACKSON MINE.—Same of 24th: A few days since the workmen struck a considerable showing of ore, not sufficient to wholly run the furnace, but many tons will be smelted, and there is no doubt but developments will be made that will place this mine again in the first rank.

EUREKA CONSOLIDATED.—Same of the 25th: One of the new and two of the old furnaces are in full blast. The new one is the largest ever constructed for lead smelting in America; six and a half feet wide at the feed holes, and four and a half at the hoshes. During the first 18 hours 75 bars of 120 pounds each were ladled out.

DIAMOND DISTRICT.—Messrs. Elzy Paul and others, have opened a large ledge which they have named the Champion, and, parallel therewith, the Hidden Treasure and the Patriot. In all they have 15,000 feet through which ledge matter may be traced. They have two hundred tons ore on dump which assays on the average \$277 in silver and 72 per cent of lead. They will erect a 15-ton furnace for smelting.

STRIKE BY ACCIDENT.—Smith, foreman of the Empire, in making a road, struck chloride ore in front of the Regulator Co.'s ground, that assays \$191 per ton.

BIG RUN.—Same of 28th: Three of the furnaces of the Eureka Consolidated produced on Friday—24 hours—251 bars of bullion of 115 pounds each. This is the largest amount ever made in 24 hours by any three furnaces in America. The average value of the hullion is \$350 per ton.

HUMBOLDT.

RELIEF DISTRICT.—*Silver State*, May 27th: The Greenstone ledge, Hadley & Co., is worked with flattering prospects. The Co. have sunk a shaft 42 feet, having a ledge 32 inches in width, showing rich in black sulphurets and horn silver. One assay gave about \$3,000 per ton. It is believed that the entire vein will yield \$100 per ton.

BULLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$6,557.

RAILROAD DISTRICT.—*Elko Independent*, May 27th: Hussey & Co., of New York, have commenced operations upon the Lone, True and Red Jacket mines.

GALENA.—*Cor. of Register*, May 27th: Ore from the White mine has yielded as high as \$2,500 per ton in silver. Some 300 tons of ore showing \$390 per ton in silver and 30 to 50 per cent. lead, have been shipped from this place during the last 12 months. Different mines are producing and will produce for a long time to come, ore in large quantities worth \$60 to \$100 per ton. The Butte mine gave as its highest yield, from first class ore, \$801 per ton.

REESE RIVER.

GOOD ORE.—*Reveille*, 23d: A lot of 27 tons from the Monitor ledge, Belmont, has just been worked at the Manhattan mill, which surpasses in richness any previous lot brought here from Nye county. Six tons, set aside as first class, gave a pulp assay of \$1,241 per ton; the balance of 21 tons, designated as second class, assayed \$626 per ton.

QUARTERLY STATEMENT.—The *Reveille* gives these figures for the Lander county mines for the quarter ending March 31st: Total number of tons ore worked, 6,341. Total value, \$419,477.

WASHOE.

OPHIR MINE, NORTH.—*Enterprise*, May 26th: Evans & Berry, who own a mill on Cedar Ravine, have leased the old upper levels of the northern part of the Ophir for six months, and are making preliminary examinations, with a view to the extraction of ore. The part of the mine leased contains base metal ore, some of which is very rich, (we saw a small specimen, which will assay \$500 or \$600), but it will probably be found that but a small proportion of the silver can be saved by the common pan process.

LADY BRYAN.—Same of 28th: The mill is running steadily on ore from both the open cut and the 80-foot level. Frequent assays are made of the ores extracted. We have been shown a number of cortificates. The first dated May 17, shows \$26.40 to the ton; May 18, an assay of pulp from the battery showed \$102. An assay of a selected specimen showed \$1,104.38. The highest obtained was from a piece of ore which good judges considered worthless; the yield was at the rate of \$3,784.28 per ton. The average of 140 working assays made since the present owners have had charge, is \$31.82 per ton.

CHOLLAR-POTOSI.—During the past week there have been extracted 2,010 tons of ore, of which there have been sent to the mills 1,788 tons the average assay value of which was \$56.20. They yesterday shipped \$63,000 in hullion.

KENTUCK.—This mine is being put in good working order. The Co., are taking out 45 to 48 tons of ore per day, which assays \$49 per ton. Two mills—the Excelsior and Gold Hill Quartz—are being run on ore from the "hurmt district" between the 600 and 700-foot levels, which is being retimbered as the work progresses.

SEGREGATED BELCHER.—The Co., are prospecting toward the Belcher line. As yet they have found nothing. They are taking out but about ten tons of ore per day.

The Sierra Nevada mill is in constant operation on gravel from the old deposit in the company's mine.

SUTRO TUNNEL.—The Suto Tunnel is in 2,000 feet. The ground works well.

MAMMOTH.—*Carson Register* May 24th: Mr. Hooton, one of the locators, reports the mine looking better than ever. The Co. will have twenty tons of ore ready for shipment to Reno for reduction on Monday.

COMSTOCK No. 2.—Same of 27th: This is the lead recently opened on the south side of Carson river, midway between the Yellow Jacket mill and the Brunswick dam. The owners under the name of the Empire Co., are prospecting. A shaft has been sunk 63 feet, and a drift from the bottom is being run to cut the vein. Assays from ore at a depth of 40 feet show \$63 to the ton.

WHITE PINE.

REVIEW.—*News*, May 27th: About 120 tons of ore per day are transported by the tramway to the International mill. The South Aurora is shipping ore by teams to the Stanford mill. The O. H. Treasure is making preparations to commence shipping. Ex-Gov. Blasdel is prosecuting work with vigor on the Ward Beecher Consolidated. He will start the Manhattan mill next week, and increase the working force of the mine. The International mill has been running all week on low-grade ore, but has made no hullion shipments, owing to the fact that the assay office and apparatus had to be removed. In the mines on Chloride Flat, a great deal of work is being done and a large amount of ore extracted. Two mines—the Emersley

American Lead, @ 100 lbs.....	7 50	@	8 00
Gorman.....	8 50	@	9 00
Bar.....	8 50	@	9 00
Tip.....	8 50	@	9 00
Residual and American Zinc, @ lb.....	9 00	@	9 50
Antimony.....	16	@	17
Spelter.....	17	@	17
Copper, old.....	17	@	17

FOUR MONTHS' SUBSCRIPTION FOR \$1.—Subscribers to the PRESS who remit direct to this office \$5 coin, in advance, hereafter, will be credited four months over a year for the extra dollar received above our regular rates. This will render it both convenient and profitable to enclose a \$5 piece in a registered letter, in which case we will be responsible for its safety.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING MAY 16TH.

GEARING FOR OPERATING DRILLS.—Amrose Blatchly, San Francisco, Cal.

THRASHING-MACHINE.—John Foreman, Healdsburg, Cal.

DOVETAILING-MACHINE.—Elander Heath, San Francisco, Cal., assignor to S. W. Shaw, William E. Brown and Leonard Goss.

AMALGAMATING THE PRECIOUS METALS AND PREVENTING THE LOSS OF MERCURY.—Josiah S. Phillips, San Francisco, Cal.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency the following are worthy of notice.

ROLLER-SKATE.—P. B. Borein, San Leandro, Cal. With the laudable desire of rendering the exercise of skating as easy as possible, and to avoid the necessity of too violent exertions in its pursuit, that it may be at once healthy and enjoyable, Mr. Borein has invented a roller-skate which is worthy of notice. In this there is a novel device which renders possible the "cramping" or turning of the rollers without the necessity of canting the foot-stand or skate block. The invention includes the application of elastic blocks or springs, by which the skate is made to ride easily. It consists also in the particular application of the rubber or other elastic spring for returning the rollers to their parallelism after the weight is removed.

DIVISION PLATE FOR COOKING STOVES.—The object of this invention is to enable housekeepers to economize in fuel by diminishing the size of the fire-place, and it is intended more particularly for cooking stoves, while it is also applicable to all kinds of stoves. It consists in the employment of a plate of metal, made to fit the fire-place and top-chamber of the stove, which can be moved back and forward across the fire-place. When not required for its purpose, this plate or partition is kept close up against the side of the stove opposite the door, thus making a false back to the fire-place, or, in other words, a double side to the stove. When it is desired to use only two of the holes in the stove, the partition can be moved to the middle of the stove, so as to cut off one-half of the fire-place and draft, thus confining the heat to one side of the stove and requiring but little fuel for the production of the desired heat.

ORE CONCENTRATOR.—W. C. Styles, Nevada City, Cal. This invention relates to an improved device for concentrating sulphurets. A sluice box is suspended by swinging rods inside of a frame, and is swung by means of a cam and by springs in such a way that it gets a peculiar jarring motion. Teeth or stirrers of a certain construction are made to agitate the sand

which collects or banks up against a riffle in the sluice. The tailings are fed into the sluice continuously, and, by the action of the water, the jarring motion and the rakes, the sand is carried off over the riffle, while the heavier sulphurets are drawn in an opposite direction and up an incline, over which is placed a peculiar drip box. Water from this box washes off any sand, which may have accompanied the sulphurets, on the one side, and carries the sulphurets down an adjoining oppositely-inclined plane, on the other side.

Editorial Notes Eastward.—4.

Through Snow Sheds and Tunnels by Night.

A novel night-ride had I, from 9 to 11 P. M., as *third* engineer on the locomotive (forward driver) on the C. P. R. R., be-

tirely shutting off our "look-out" beyond our "cow-catcher," so that we seemed occasionally to plunge furiously through darkness a hundred times blacker than any "out-door" darkness imaginable.

I shall not soon forget the watchful sight tendered to the many quick curves, and the graceful windings in the solid and grand colonnades which we speedily traversed during a two hours "inside look-out" with our trustworthy driver,—a noble engineer, honest enough to say that he much preferred "out-door" running.

As to my own experience, I would say that a berth in the palace sleeping car in rear of the train is far more comfortable and healthy for a tender passenger than a

to their utmost extent—the thumb and little finger being much the longest—represent inlets indenting the south shore, and stretching inland, as if to wash away the Rocky Mountains. Between these inlets project high, rocky promontories, covered with dense timber. The largest stream flows into the lake at its upper end, or the extreme southeast corner. This stream is really the Yellowstone River, which, for a distance of thirty miles, has an average width of over fifteen miles. This enlargement constitutes the lake, which, after being augmented by several smaller streams, narrows down to the width of an eighth of a mile, and flows northward toward the great falls.

The mood of the lake is ever changing; the character of its shore is every varying. At one moment, it is placid and glassy as a calm summer's sea; at the next, "it breaks into dimples and laughs in the sun." Half an hour later, beneath a stormy sky, its waters may be broken and lashed into an angry and dangerous sea, like the short, choppy waves which rise in storms on Lake Erie and Lake Michigan. Where we first saw it, it had a glittering beach of gray and rock-crystal sand, but as we continued around it, we found rocky and muddy shores, gravel beaches—on which several varieties of chalcidony were profusely scattered—and hot springs in abundance. Near the southeast end of the lake is the highest peak in the vicinity. It is steep and barren, and from the lake-shore appears to taper to a point. On the south side is a precipice, nearly a thousand feet high. Two of the party ascended it. It took them all of one day to make the trip and return. About two-thirds of the way up they were obliged to leave their horses, and continue the ascent on foot.

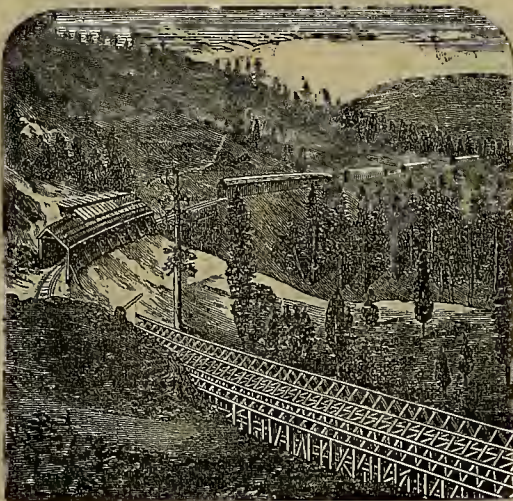
The altitude of the mountain, as obtained by observations with the barometer and thermometer, was 11,163 feet. Much snow was found before reaching the summit. A fine view of the surrounding country and a good idea of the shape of the lake were obtained. Immense steam-jets were seen to the south; but as our time was becoming somewhat limited we did not remain to visit them. Several barometrical calculations were made, and we determined the height of the lake to be 8,300 feet.

NEW CATTLE CARS.—A train of eleven of Stuart's palace stock cars were loaded at St. Louis, on April 28th, with 170 steers, and left via the Indianapolis, Bellefontaine and Pennsylvania Central Railroads, direct for the Communipaw yards, New York. This is the first full train of these cars ever loaded, and the event is regarded by railroad and stock men as a very interesting one in the shipment of live stock. The cars were loaded in from 6½ to 10 minutes each, and will reach New York in 96 hours. The cattle will be fed and watered

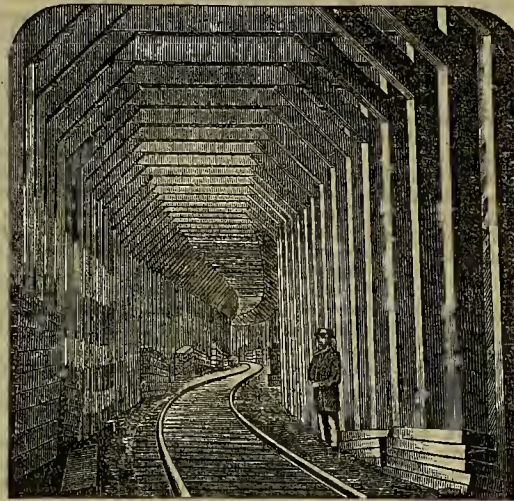
in the transit. The old mode of shipment required 240 hours for the same distance. If this shipment prove successful, a company will be formed in St. Louis for building cars, and operating them on the roads west of there, to accommodate the great cattle trade of Texas and Kansas.—*U. S. Min. and R. R. Reg.*

AN INTERESTING DOCUMENT.—The most interesting document yet revealed by Mr. Kremer's researches among the archives in Los Angeles, is an original proclamation of peace between Mexico and the United States, made by the commandant either of the post or the department. It is in a mutilated state, lacking both date and signature.

RIPE BLACKBERRIES are making their appearance on the banks of the San Joaquin river, below Millerton.



SNOW COVERING.
329 miles from San Francisco—Altitude 5,354 feet.



SNOW GALLERY.
244 miles from San Francisco—Altitude 6,554 feet.

tween Cisco and Truckee, thirty-five miles, most of the track continuously leading through snow sheds and tunnels, including the noted Summit Tunnel, 1,659 feet long, and over 7,000 feet above the sea. The two locomotives, in tandem, with their fiery throats consuming a cord of wood each in less than a hundred minutes, constantly showering live sparks, and with reflecting head lights, effected a more brilliantly lighted interior than is wont to

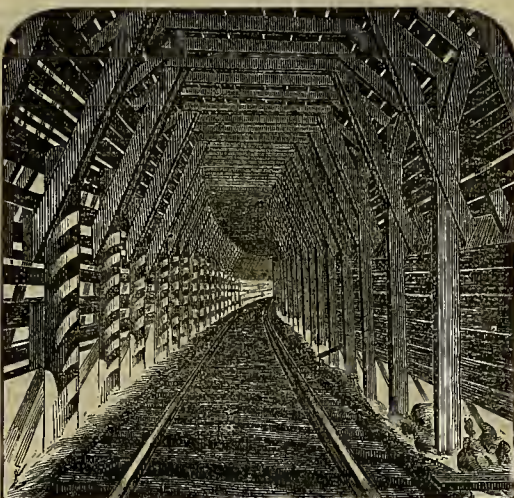
front seat with the engineer—at night! A two weeks' severe cold and cough has relieved me of all locomotive hobbyism.

Yellowstone Lake, Wyoming.

Our Pacific Coast magazine, the *Overland*, comes to us for June with its usual pleasing variety. From its rich pages, overflowing with charms, we cull the following concerning a lake of which we



SUMMIT OF SIERRAS.
543 miles from San Francisco—Altitude 10,000 feet.



INTERIOR SNOW SHEDS.

be met with elsewhere in the "caverns of the earth."

At some places we could see a long distance forward, and I watched the huge, glistening icicles, pendant from the roof or crevices in the overhanging rock, with a feeling of certainty that "our smoke wagon" would strike some of them into a thousand fragments; and yet as we neared them, all seemed to "arise with the occasion," invariably dispelling our anticipated fun.

Sometimes the smoke of engines which had driven through before us, remained in the tunnel, and the grim cloud appeared to be driven and massed before us, en-

have all read so much and yet know so little.

Lake Yellowstone is a lonely, but lovely inland sea, everywhere surrounded by "forests primeval," and nestled in the bosom of the Rocky Mountains. Some trappers have insisted that its waters ran both to the Atlantic and the Pacific, but such is not the case. The summit of the chain, however, approaches within half a mile of its south shore, and in places the divide is very little above the lake. Its shape resembles the broad hand of an honest German, who has had his forefinger and the two adjoining shot off at the second joint, while fighting for glory and Emperor William. The palm of the hand represents the main body, or north part, of the lake. The fingers and thumb, spread

Santa Barbara as a Sanitarium.

ENRORS PRESS:—A considerable break having occurred in my weekly meteorological reports, in consequence of my absence from Sacramento, in search of a retreat for invalids, I propose filling up the gap with some account of the climate, topography and surroundings of this interesting region from a sanitary point of view. In doing so, I purpose confining my remarks chiefly to that portion of Santa Barbara which consists of a coastwise strip of land, averaging about three miles in width and some sixty or so in length, and extending in a due westerly course from Point Conception to Point Buenaventura. Bounded on the north by the Coast Range mountains, of an average height of 3,000 feet, which prove an insurmountable barrier to the peculiar harsh oceanic winds, and on the south by a channel formed by the Santa Cruz and other islands, some 20 miles distant, which serve as well to deflect the cold current that sweeps down from the Arctic seas as to afford protection from the concomitant cold fogs that roll in so uninterruptedly in other parts of the coast, this portion of California stands out pre-eminently the land of promise to the weary desponding invalid.

The very conformation and topography of this section, while it explains the cause, speaks to the intelligent reader of a climate that cannot be otherwise than even, mild and soft, and, at the same time, invigorating with the moist, but refreshing, sea breezes, which the thirsty land sucks in. In vain, heretofore, since my appointment to the responsible position of Health Officer to the State, have I sought for such a combination of sanitary qualities as are now presented. Here in this mountain and island locked valley, rising but a few feet from the blue waters of the grand old Pacific, all the pre-requisites of health are to be found in measure so profuse, that I would be accused of poetic extravagance, were they duly portrayed. The instrumental and numerical proofs must be left to sustain all I have advanced; but before stating these, which I can only now do in part, (reserving the fuller details for a State report,) I proceed to speak more particularly of the town proper, which furnishes the type of the whole region reviewed, and where the statistical and meteorological data have been carefully compiled by trustworthy observers.

Description of the Place.

Santa Barbara is the county seat and principal town of the county of the same name. It is built upon a beautiful slope, rising from the sea-beach, at the south-eastern extremity of a gently ascending valley, some fifteen miles in length and two in width, but gradually spreading out to five miles, as it extends into the interior. The beautiful harbor consists of a cove, or semi-ellipse, about one and a half miles wide from point to point, indented into the curving shore and protected by the overlapping San Rafael and adjoining ranges. The gently sloping beach for several miles affords safe sea-bathing at all seasons of the year. At low water an admirable and pleasing drive, equal to that of Newport, may here be had, and the interesting drawing of the seine, full of every variety of fishes, may be witnessed,—a most important item in the dietary of the feeble, from the warmth-giving phosphorus it contains.

The historical feature and nucleus of this old Mexican town, now in an active transition stage, is the old Mission Cathedral, about one mile and a half from the shore and at about 300 feet elevation from the sea level. It is built of sandstone of the surrounding hills, and one is struck with the ancient grandeur of its imposing Moorish style of architecture. The main nave of the building is 200 feet long and 40 feet wide, supporting two lofty domes in front, with belfries of solid masonry, which are seen at a great distance in all directions, both on land and ocean. To the left is a wing 130 feet long, with porches supported on pillars and arches, all in a good state of preservation. I call attention particularly to this monument of the zeal of the Franciscan Friars, who, in 1786, here first raised the emblem of the cross, because, in keeping now with this progressive age, these self-sacrificing fathers are strenuously conducting a flourishing college, which is making rapid strides in its course towards

the noble position which it is destined, at no very remote day, to occupy among the literary and scientific institutions of the country.

Among the works, stupendous for the times, constructed by the well ordered labor of 3,000 Indians attached to this mission, are reservoirs, basins, fountains and aqueducts, running over with pure spring water from the adjacent mountains. These, it is contemplated (as I am informed), to extend into the city, by a system of water works, and thus provide for one of the most essential elements of health.

Schools and Churches.

Besides the missionary system just noted for the education of boys, there are also the St. Vincent's College for girls, and the Santa Barbara (Protestant) for both sexes. In addition, there are two good public schools which are well attended. These institutions attest the intellectual basis on which the future prosperity of the city is to be built. The religious element, too, is not wanting, for there is a larger proportion of churches to the population than I have witnessed in any other California town, some of which are built in good architectural taste. Besides the old Mission, the Catholics have still another church in the town, and the Congregationalists, Episcopalians and Methodists have each a brick edifice. The Presbyterians have as yet only a small wooden chapel, but contemplate erecting a more imposing structure at an early day.

About one-third of the town consists of the primitive tile-roofed adobe houses, which, however, are fast disappearing before the encroachments of modern wood and brick buildings. A large three-story hotel is now in process of construction, which will be furnished with all the modern appliances necessary for the comfort of travelers.

In fact, nothing can now check the march of improvement, which, in the last three years, has advanced in a geometrical ratio, going on at the same rate towards building up this, the promised land, into a health resort, unsurpassed in artificial, as it is in natural, advantages by any place on the coast, the continent, or the world.

Were I writing from any other than a sanitary standpoint, I could dwell with rapture on the refined and cultivated society to be here met with, and of whose prodigal hospitality I have been the surprised recipient. I could also speak of gardens redolent with the perfume of every kind of flower, of tasteful cottages, and still more ornate residences, from which the sweet accord of music floats upon the balmy air, and of landscape views, which, for loveliness and variety, are rarely equalled. These meet one at every turn, and almost tempt me, while I write, to stray into the paths of descriptive romance. But I have taken up my pen to speak of facts—of climate and of vital statistics—and to those I must confine myself.

Agricultural Features.

I cannot, however, refrain from alluding to the prolific yield of the soil, which, as it depends upon a peculiar climatic feature, comes within my scope. I have seen for myself, and have conversed with producers from all parts of the world, and with them am satisfied that for richness and depth, varied productiveness and yield, the land has no superior. I have seen above Indian-cornfields, with the grain just germinating at this late date, when the rains are all over, and which, I am assured, will produce without irrigation from 100 to 150 bushels to the acre; and this in consequence of the absorbent properties of the soil from the moist sea air. Vegetables, with no exceptions, are readily produced in quantity and size that might challenge the credulity of an upper Californian. Every kind of tropical and other fruit grow to perfection, and the orange and the apple may be seen bearing fruit side by side. As a special proof of the prolific character of the soil, I will mention a grape-vine, some three or four miles out of the town, which, on actual measurement by myself, was found to be four feet three inches in circumference, 4½ feet from the ground, at the point of beginning of the first branch. This vine, still healthy and vigorous, was planted from a cutting some forty odd years ago, and its branches now spread over a trellis 76 feet long and 61 wide, which they completely cover. It produces from 12,000 to 15,000 pounds of fruit annually—some of the clusters weighing five pounds. I have seen large grape vines in France and other parts of the world, but this beats them all; and so said the great traveler, Mr Seward, when he measured it a year or so ago.

Mineral Features and Influences.

This must suffice to give some idea of the wonders of the vegetable kingdom. Let us now turn to the mineral, which, as will be shown in the sequel, even mingles with the air we breathe. About four miles from the town, picturesquely located in one of the cañons of the mountains, are the Hot Sulphur springs, which have become favorably known as a place of resort for invalids, especially those suffering from rheumatic affections.

I learn from good authority that while the country was subject to the Crown of Spain, the government sent out a commission of qualified scientific observers to make an examination and analysis of all mineral waters, both in Mexico and upon the Pacific Coast, and that this commission, after spending much time prosecuting their inquiries, reported the most favorably on the properties of these springs. The waters are found of different temperatures, varying from 60 to 130 degrees, Fahr.; but I would advise invalids resorting to them for relief not to indulge too long at first in their relaxing influence, as very often, patients, feeling themselves immediately improved by their use, are apt to resort to them too freely.

As to the climate of Santa Barbara, it will be seen that, although lying in about the same latitude as Charleston, S. C., yet it is totally different, and that the isothermal line would be deflected towards St. Augustine, Florida. The same clothing is worn all the year round, and there is no day in the year in which the invalid may not sit out of doors. This covers the most essential indication in the treatment of consumption, by affording a continuous supply of pure, unadulterated air-food for the lungs. Still, as the climate possesses some latent peculiarities in its favor, too subtle for ordinary observation, I shall instance the remarkable phenomena, so philosophically noted by Dr. Brinkerhoff, who has resided here 18 years.

Remarkable Phenomena.

"Some ten miles from Santa Barbara in a westerly direction, in the bed of the ocean, about one and a half miles from the shore, is an immense spring of petroleum, the product of which continually rises to the surface of the water and floats upon it over an area of many miles. This mineral oil may be seen any day from the deck of the steamers plying between here and San Francisco, or from the high banks along the shore, its many changing hues dancing upon the shifting waves of the sea, and affording various suggestions, both for the speculative and the speculator. Having read statements that, during the past few years, the authorities of Damascus and other plague-ridden cities of the East have resorted to the practice of introducing crude petroleum into the gutters of the streets to disinfect the air, and as a preventive of disease, which practice has been attended with the most favorable results, I throw out the suggestion, but without advancing any theory of my own, whether the prevailing westerly sea breezes, passing over this wide expanse of sea laden petroleum, may not take up from it and bear along with them to the places whither they go, some subtle power which serves as a disinfecting agent, and which may account for the infrequency of some of the diseases referred to, and possibly for the superior healthfulness of the climate of Santa Barbara."

I would add that during one week's sojourn here, my attention has been directed to the peculiar ambrosial influence pervading the air, so well described above, and that I indorse all that has been stated in this respect. That the climate of Santa Barbara possesses all the elements of general healthfulness in an eminent degree, is substantiated by the facts that the epidemics and diseases incident to childhood are almost unknown. Fevers and agues never originate here. Small pox, frequently brought from abroad, never spreads, although hundreds of the native population, either from ignorance or prejudice, never allow themselves to be vaccinated.

Temperatures and Moisture.

I have said when speaking of the prolific yield of the soil, that it was due to the moist sea air. On this depends the deliciousness of the climate. Moist air, either too hot or too cold, is injurious. The latter chills the surface and drives the blood in upon the internal organs. But the moist air in which we bathe in Santa Barbara is possessed, of that happy combination of temperature with moisture, which, while it refreshes, also invigorates and vitalizes equally the whole system. The range between the wet and dry bulb thermometers, at 2 p. m., is usually about four degrees, except on foggy or rainy days,

when it is sometimes identical; and yet, strange to say, the feeling of chilliness is never experienced. During the prevalence of a high land wind, the range is occasionally extended to ten or even twenty degrees; but even then that feeling of irritation and dryness, which attends the same wind in the more northern portions of California, is unknown. This occurrence, however, does not happen oftener than once or twice a year, and then only for a brief period about the equinoxes.

The peculiar evenness of the climate is shown in the following tables, compiled from the meteorological register of the Rev. J. A. Johnson, the "indefatigable editor of the Santa Barbara Press."

Monthly Mean.

April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
60.62	62.35	65.14	71.49	72.12	68.08	65.96	61.22	62.12	61.61	63.36	68.42

Average temperature for the year..... 60.20

Coldest Day.	Dege.	Warmest Day.	Dege.
April 12th	60	April 16th	74
May 15th	66	May 23d	77
June 1st	69	June 3d	80
July 26th	76	July 11th	84
August 11th	77	August 8th	86
September 23d	66	September 27th	80
October 23d	60	October 20th	92
November 7th	64	November 20th	87
December 16th	63	December 28th	71
January 11th	56	January 3d	76
February 16th	62	February 28th	71
March 13th	50	March 27th	83

Coldest day in the year, Feb. 22, 42°; warmest day in the year, October 20th, 92° Variation, 50°.

Vital Statistics.

To the labors of Drs. Bates, Biggs, and Father Villa, I am indebted for the following table of the vital statistics of Santa Barbara, compiled from the records of the Mission, during a period extending over nearly ninety years.

Date.	No. of From April 21, 1782, to Dec. 31st, 1800.	No. of deaths.	No. of marriages.
1782-10	213	80	40
1800-10	165	63	31
1810-20	206	74	33
1820-30	306	78	57
1830-40	622	133	69
1840-50	635	193	116
1850-60	956	405	172
1860-70	1087	495	172
Total	4090	1620	707

It will be seen from the above that for each death there have been 2½ births,—an unusually large proportion as compared with other places. Another point of interest is the marked increase of the death ratio during the last 20 years; due doubtless to the advent of adventurers and invalids. In addition to long life, these statistics show that to each marriage there is an average of about 5½ children, an unprecedentedly large proportion.

The following statistics of the town and county of Santa Barbara are taken from the U. S. Census Returns for this county for the year ending June 1, 1870, and speak more for the healthfulness of the place than anything I can add.

Population of the town, 2,987. Number of births, 131; deaths of children under one year of age, 9; ratio of births to deaths, 14½ to 1. Total number of deaths, including adults, for same period, 23; ratio of births to deaths for the whole population, 5.7 to 1, or nearly 6 to 1. Percentage of deaths in the town population, 1 in 130, or .77 of 1 per cent.

Population of the county, 7,984. Number of births, same period, 235; total number deaths of children under one year of age, 15; ratio of births to deaths, 15½ to 1, or nearly 16 to 1. Total number of deaths in the county, 64, two accidental; percentage of deaths in total population, 1 in 125, or .80 of 1 per cent.

THOMAS M. LOGAN, M. D.,
Permanent Sec'y. State Board of Health.
Santa Barbara, May 22d, 1871.

THE RAILROAD IN SONOMA.—The Santa Rosa Democrat, of May 27th, says: The railroad has now been completed to Russian River, within a very short distance of our beautiful sister town of Healdsburg. It seems to be the opinion of most people that the company will not bridge the river this summer. Should this be the case, it is difficult to tell when the Directors will resume the work of pushing the road on to Cloverdale. As things now stand, Healdsburg will receive as much benefit, if not more, than any other town in the county from the construction of this road, and we are far from being envious of her good fortune. Although the road will terminate where it is for the present, our Cloverdale friends can rest assured it will reach them in the course of time,

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. ASTRONG,
W. B. EWER, JNO. L. BOONE.

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

San Francisco:

Saturday Morning, June 3, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, May 25, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
111½.

Table of Contents.

Work at the City Foundries; World Reaper and Mower, Ill.....	337
MECHANICAL PROGRESS.—Ozokerite; Ransome's New Stone; Blasting at Hell Gate; Bank Lock; Insulation of Submarine Cables; Fibrous Plaster.....	338
SCIENTIFIC PROGRESS.—Mechanical Correlative of Thought; Numbering Rapid Vibrations; New Pyrometer; Variability vs. Natural Selection; Poison of the Cobra; Color of Sky; Application of the Spectroscope.....	338
Wastage of the Precious Metals; Krupp's Steel Works, Ill.; Right and Left; Missouri Narrow Gauge Railroad.....	339
MINING SUMMARY; Shareholders' Directory; Mining Stocks; Market Rates.....	340, 341
List of Patents; Notices of Patents; Editorial Notes Eastward, Ill.; Yellowstone Lake, Wyoming; New Cattle Care.....	342
Santa Barbara as a Sanitarium.....	343
Interesting to Settlers; Improvements in Amalgamation; Diamond Drill at Smartsville.....	344
Cal. Silk Manufacturing Co.; Dry Concentration; Rotig's Stop Watch, Ill.; Apparatus for Preventing Boiler Explosions, Ill.; Refuge for Invalids.....	345
Chemistry of the Kitchen, Ill.; How Chinese Cook Rice; Domestic Receipts; Mechanical Hints.....	346
Mathematics, etc.....	348

Interesting to Settlers.

The Commissioner of the General Land Office has issued a circular explaining the effect of recent legislation by Congress upon the interests of settlers on the public lands. With respect to "offered lands," filing within thirty days and payment within twelve months after settlement are still required:

"The settler on surveyed 'unoffered land' must file his or her declaratory statement within three months from the date of his or her settlement on such land, and within thirty months from the expiration of said three months, make the proper proof, and pay for such land.

"Where settlers have already filed before the passage of the Act, [of July 14, 1870,] they are required to make proof and payment within two years from such passage; therefore, all filings made prior to that date will expire, by limitation of law, upon unoffered lands, on the 14th of July, 1872.

"The settler on 'unsurveyed land' must file his or her declaratory statement within three months from the date of the receipt, at the District Land Office, of the approved plat of township embracing the tract upon which he or she is settled, and, within thirty months from the expiration of said three months, make the proper proof, and pay for such tract.

"The proviso of the Act of June 2, 1862, requiring filing within six months from survey in the field, and providing for filing with the Surveyor-General, is repealed."

It will be seen that those who filed on unoffered land prior to July 14, 1870, have till July 14, 1872, to make proof and payment; while those who filed on unsurveyed land after the former date have thirty months from the expiration of three months after filing of map.

PENNSYLVANIA MINING CATASTROPHE.—Details of the late coal mine horror, at Pittston, Pennsylvania, have been received, by which it appears that of the thirty-eight men in the mine when the one shaft caught fire, twenty were saved. The miners above acted, as they always do, most gallantly in their endeavors to save those below. In addition to this catastrophe, comes the news of an explosion of 400 lbs. of nitro-glycerine, near Titusville, Pa., by which, however, only one life was lost.

Improvements in Amalgamation.

The *Territorial Enterprise*, about a month ago, had a very interesting article on working tailings at Washoe. It gave a detailed history of how the attention of millmen there was gradually attracted more and more to the possibility and the profit of catching and treating the slimes and tailings, and spoke of the processes of the mills employed in amalgamating these.

As the paper remarked, the tailings and more particularly the elimes (or the ore which floats away from the battery and out through the settling tanks in the mill, thus escaping all metallurgical treatment) are very hard to collect. Being in a finely divided state, they are easily floated off on the water; and hence, although much is caught in the extensive sluices and reservoirs, yet, after miles of these, the water still holds a large quantity in suspension.

The reason of this is to be sought in the nature of the soft clay which occurs in the Comstock lode, which nature is best expressed to the miner by the name of "elime." This forms a light mud, and very likely the decomposition of the sulphurets aids in its escape, by the formation of bubbles which adhere to the slimes. Such material is very difficult to amalgamate. As the *Enterprise* says, the Parke & Bowie mill finds it profitable to catch and save their own tailings—the tailings of tailings, the slimes of elimes. In amalgamating them, "the dose of salt and sulphate of copper is made much stronger than for tailing alone."

To this last sentence we call particular attention. It is to the use of chemicals, at least, to a very great extent, in the pan that we must look for improvement in the amalgamating process. We have often seen an amalgamator put a spoonful of sulphate of copper into a large pan in the belief that he was effecting something thereby. This was of course absurd. Instead of spoonfuls he should have put in pounds. It is the use of salt and the sulphate of copper in large enough amounts that enables the tailing mills, added to above, to return a large percentage of the silver and thus be run at a profit.

The chemical dose can be given in treating silver ore in very many instances with great advantage. It will raise the yield to a very perceptible extent. But it must be used judiciously, reference being had to the amount of metal in, and the nature of, the ore. In some cases, of course, it will be needless. But it can very often be employed with profit, if employed with judgment.

There are some drawbacks to this. The bullion will not be so pretty, for the copper will go into it to a great extent, and the chemicals will attack the pan. But the increased yield will repay for all this. And in time the addition or substitution of other chemicals, and improved constructions, will decrease the bad effects.

A New Construction.

We learn from the paper, on whose article we have been commenting, that Mr. Parke, one of the proprietors of the Parke & Bowie mill, has a new pan in use for working tailings. As we have lately seen, at the Union Foundry in this city, a pan of new construction, we take this opportunity of describing it.

The pan is not claimed to be of particularly or completely novel construction, but is rather a combination of such points as have been shown to be desirable by practice. The chief object is to provide a pan which can be easily cast, easily transported, and easily repaired, when damaged in any one part, without the necessity of throwing away the whole thing.

The flat bottom is cast with iron sides, 15 inches high. To protect these sides, which are particularly exposed to wear and tear and to the action of the chemicals, an

iron ring, 10 in. high, 1 in. thick, is placed in the pan, resting on the bottom and fitting exactly to the sides. The iron sides are surrounded by wooden sides of the height (30 inches) of the pan, leaving in metal, and exposing less iron to precipitate the copper from its sulphate. The wooden sides are held by three enclosing iron hoops, the ends of each of which are connected by tightening screws.

The discharge hole is on a level with the bottom of the pan, so that it can not well stop up, or, if it does, can be easily cleared. The iron ring, referred to above, is so constructed that, when worn out at the bottom, it can be reversed.

The shoes, dies, mullers, cone, driver, all the various parts, in short, are cast separately and fastened in the simplest manner. The cone rises some 9 inches above the top of the pan, so that no pulp can be elashed up to interfere with the working of the vertical shaft in the box or at the step. The flat muller-plate is cast with a socket, into which is locked, by a partial revolution, the corresponding lug on the foot of the driver. There is quite a large space allowed between the driver and the cone, preventing any packing of the ore between the two and allowing a free circulation of the pulp in the intervening space. There is a distance of 2½ inches allowed between the muller-plates and the interior ring; also a larger space than usual between the shoes. This is done to prevent packing of the ore, which experience shows is very apt to occur in working, in these spaces.

The vertical shaft, with attachments, can be raised or lowered four inches, to allow of setting the muller-plates, regulating the grinding, etc. The pan is 5 feet in diameter in the clear, and will work charge of about 3,700 pounds.

There are several other points of note, but sufficient has been said to intimate the general plan of the pan. By this construction, whenever one part is injured, this part can be easily replaced, being duplicated, without losing a large portion, or the whole, of the pan. By it, transportation is rendered more easy. There is also a saving of weight, although the bottom is made much thicker than common, this weighing some 1,200 lbs. less than the ordinary pan of the same size. The chemicals are also better utilized. The apparatus is, designed more particularly for working raw ore, where a large amount of chemicals is used. The Union Foundry has shipped a number of these pans to the Meadow Valley mill, Pioche, Nevada; to the Monte Cristo mill, Nevada; and to the Monitor and North Western mill, Alpine County, Cal.

The Diamond Drill at the Smartsville Tunnel.

In the *SCIENTIFIC PRESS*, of March 11th, 1871, we gave an accurate description of a new tunneling machine constructed by Messrs. Severance, Holt & Co., in this city for the tunnel of the Blue Gravel company at Smartsville. To have judged of the merits of the machine from its very first workings and before the workmen had had opportunity to understand its operation, would have been wrong, and we have allowed some time to elapse without taking particular steps to enquire into the details of the work, keeping informed, however, as to its general conduct.

A fair space of time having now elapsed, we have investigated the matter more fully, and can now give the results, which are eminently satisfactory,—so much so that a high testimonial (which we append) has been written by the Blue Gravel company.

The tunnel in question is to be 1,563 feet long, 8 feet high and 6 feet wide. Already 1,285 feet have been cut by hand, in three years, at a cost of \$40,000. Eight men were employed in the work daily,

making about one foot per day at a cost of about \$40 per foot, blasting with black powder.

The diamond drill machine has now cut 50 feet, with the aid of two men in the tunnel to operate it. The motive power is compressed air, supplied from a 15 horse-power engine at the mouth of the tunnel. The bore-holes are 1½ inches in diameter and 30 to 50 inches deep. Giant powder is used, being fired by an electric fuse and battery.

During a space of 4½ days, accurate observations and estimates of cost, work done, etc., were made. During this time, 11 feet 6 inches of tunnel were cut through the hard syenite bed rock, running out the debris 1,520 feet from the face of the tunnel. In this work, 7 runs were made with the drill (and 7 blasts), 8 to 13 holes being bored at each run, and 72 holes being driven in all. These holes varied in depth from 2½ to 4½ feet.

To make one foot of tunnel 6½x9½ feet, by hand drilling as before done, required about 30 holes, or from 300 to 330 holes for the lineal distance of 11½ feet, while with the diamond drill and giant powder, only 72 holes were required. During the last 40 feet, not a hole was drilled by hand, nor a steel drill used.

During the 108 hours (4½ days) named, 50 hours were consumed in running out the rock, leaving 58 hours for boring, traveling to and from meals, etc., etc. The average rate of boring, therefore, was nearly 2.4 inches per hour; or, of boring, running out rock, etc., nearly 1.3 inches per hour. Or, the tunnel was run in at the rate of 2.6 feet per day, while before only 1 foot was made.

The electric fuses and battery were furnished by the Electrical Construction and Maintenance Co., of San Francisco. The battery was placed about 800 feet from the face of the tunnel in a convenient place, and the charges were exploded without a single failure.

One great advantage found by blasting by electricity was that while 10 to 20 holes of giant powder were fired simultaneously, and while the effect was greater than where a powder fuse was used, the offensive smell was much less. This last is agreed to by all the workmen. With the electric fuse but little or no difficulty was experienced in this respect. It is thought that the offensive odor is caused by the combinations formed by the combustion of the black powder and nitro-glycerine.

The cost of running the 11½ feet of tunnel, including oil, wood and all other expense, excepting the interest on the cost of the machine, amounted to \$24.01 per foot, being about three-quarters of the cost of hand labor, while the work progressed nearly three times as fast. It is thought that these expenses can be reduced still further. The saving of time by the speedier completion of the tunnel, effects an important item in the economy of the enterprise.

The use of compressed air is a valuable auxiliary in keeping the tunnel in a proper condition for the health of the workmen.

Mr. Severance deserves the highest credit for his energy in introducing his machine and his talent in adapting it to the peculiar wants of the mining community. And to Mr. — Robineon, whose mechanical skill and practical good sense have been of the greatest aid, large credit must likewise be awarded.

What the mining company thinks of the machine in question will appear from the following letter, which we copy from the original manuscript, dated San Francisco, May 29th, 1871.

"We are pleased to express our high appreciation of the 'Diamond Pointed Tunnel Drill,' which we are using in our bed-rock tunnel at Smartsville, and pronounce it a complete success.

"With this machine more than twice the amount of tunnel is made per week, and at a less cost per foot, as compared with the hand drilling process.

"The best assurance we can give of our entire satisfaction regarding the working of it thus far, and its advantages over hand drilling in our hard syenite rocks, is the fact that we have purchased the one now in our tunnel and ordered from Messrs. Severance, Holt & Co. another of the same kind."

[Signed] Blue Gravel Min'g Co.
per JAS. P. PREROE.

A Refuge for Invalids.

The ill effects of indiscriminate praise are well illustrated in the case of the climate of California. It has been only too common for us to extol the excellence of the climate of any part of our coast. The result has been that visitors from other countries have come hither, have visited several localities which have been extravagantly puffed, have found that false statements have been made with regard to these places, and have been confirmed in the opinion that, as some of the most highly landed localities are absolutely unfitted for the purposes for which they are extolled, therefore California has no climate at all.

This opinion is now only too general abroad, and it is of the highest importance that the false impression should be corrected by careful, well authenticated statements of the actual facts of the case. That many places are unfit for invalids must be acknowledged. Our climate is generally salubrious, generally excellent for healthy persons. And we have also places most beneficial for invalids.

But where shall the sufferers go? This question can be best answered by our medical authorities. We call attention to the article (on another page) on Santa Barbara as a Sanitarium, which has been written by one of the most eminent physicians of the coast. For consumptives, and those suffering under chronic diseases, we have here a refuge vouched for by good authority. The sanitary advantages are well set forth by an impartial pen, and actual facts are given.

We hope to give equally correct facts of the kind with regard to other localities. We wish to show that California affords many a refuge for the sick, and that in its wide range of climate, it has conditions most especially fitted to cure. But these conditions do not exist everywhere, nor are they everywhere equally good for all cases.

Dry Concentration.

The Colorado Miner thinks that the Krom concentrator has proved a great success at the Washington mill, Georgetown, Colorado. At first, considerable difficulty was experienced in working the machine, but now everything goes smoothly.

The Miner has obtained the results of working a lot of ore from the Terrible lode, and gives figures as to cost and yield with and without dry concentration. We condense.

The amount of ore treated was 423 tons as received from the mine, which gave 407½ tons when dried. It assayed \$54.22 per ton in silver. The results from treating the concentrated ore were as follows:

Cost of hauling to mill and concentration.....	\$3,595.50
Loss on 22½ tons tailings @ \$3.91.....	877.35
Hauling concentrated ore to Reduction Works.....	178.00
Cost of reduction and loss therein.....	7,933.81
	\$12,604.66

Value of crude ore.....	\$22,094.65
Net gain.....	\$9,489.99

The cost without previous concentration is estimated as follows. The reduction works return 80 per cent. of the value and charge \$25 per ton.

Hauling to mill @ \$3 per ton.....	\$1,269.00
Cost of reduction.....	10,187.50
Loss by Amalgamation.....	4,418.93
	\$15,875.43

Value of crude ore.....	\$22,094.65
Net gain.....	\$6,219.22

This shows a gain of \$3,270.77 (\$8.02 per ton), by the use of concentrating machinery.

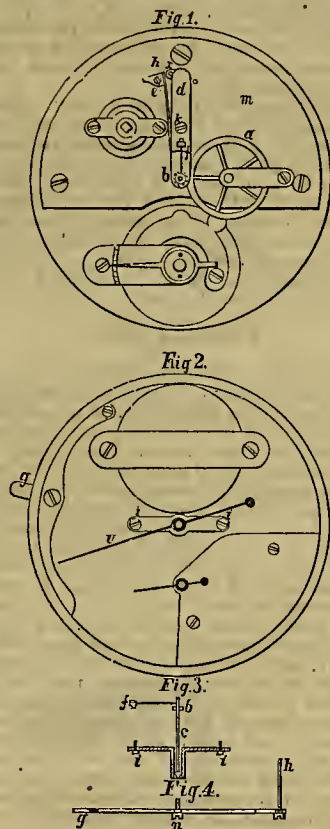
WASTAGE OF THE PRECIOUS METALS.—We call attention to an article, on another page, on this subject, written by Mr. Almarin B. Paul. The matter absolutely demands serious consideration. There has always been the greatest difficulty in getting actual facts in this connection, although we have all known that there has been a great loss. The article is therefore most interesting as well as most important.

Rotig's Patent Stop Watch.

From our most valuable cotemporary, the *American Artisan*, from whose pages we make liberal extracts, we take the following illustration and description of an improvement in stop watches. In the engraving Fig. 1 is a back view of the stop-seconds mechanism; Fig. 2, a front face view, the hour and minute hands being omitted; and Figs. 3 and 4, detail views of the mechanism.

The front end of the centre spindle, *c*, carrying the stop seconds-hand, *v*, is held in place under the dial by a small fixed bridge, *i*, the back end of which is supported in a small cock, *d*, capable of a slight oscillating movement on a pin, *k*, screwed into the back-plate, *m*, the cock being outside of the latter. The bridge, *i*, also carries the minute and hour wheels and hands.

On *c*, just inside of the cock, *d*, is secured a small, rough-edged ruby disk, *b*, the diameter of which may be equal to that of the ordinary seconds-pinion; and on the pinion staff of the "third wheel" is a smooth-edged disk, *a*, the diameter of which may be equal to that of the "third wheel." Attached to *m* is a thin steel spring, *e*, pressing against *d* with sufficient force to keep *b* in close enough contact



with *a* to enable the latter to give rotary motion to the disk, *b*, and the stop seconds-hand, *v*.

The stop lever is shown at *g*, and is arranged to work on a stationary fulcrum-pin, *n*. One end of this lever projects through the rim of the watch-case, as in Fig. 2, and the other end carries a vertical spring, *h*, the extremity of which protrudes through a small opening, *x*, (Fig. 1) in the back plate, *m*, sufficiently to press against the outer end of the cock, *d*. By pressing the protruding end of the stop-lever, *g*, in one direction, the vertical spring is removed from contact with the cock, *d*, and the pressure of the spring, *e*, is made to press the ruby disk, *b*, in contact with the disk, *a*, and the stop seconds-hand is thereby caused to start instantaneously, and afterwards allowed to operate freely.

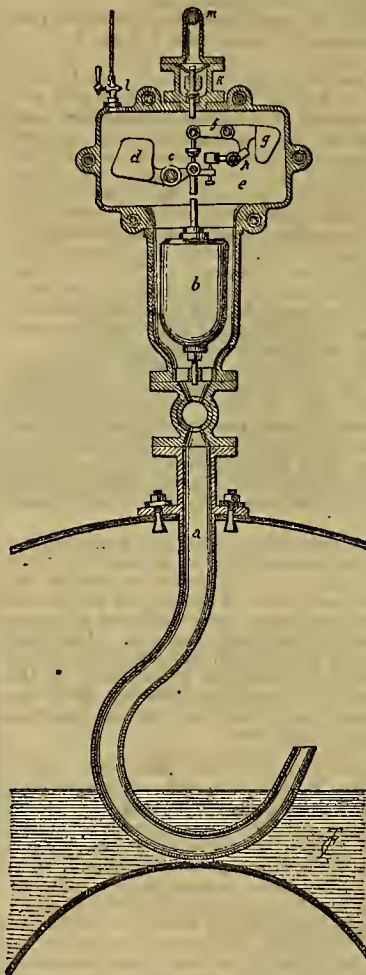
By pressing the protruding end of the stop-lever in the opposite direction, the vertical spring, *h*, is made to press upon and so displace the cock, *d*, that *b* is brought out of contact with *a*, and the stop seconds-hand then stops instantaneously, its movement being prevented by the friction of a small spring, *f*, (Fig. 1 and 3) which presses against the center axis or spindle, *c*.

COLORING FOR BUTTER.—A French chemist announces the discovery of "carotine," the coloring principle of carrots which is invaluable to give butter the true Orange country tinge.

Apparatus for Preventing Boiler Explosions.

The apparatus herewith illustrated, termed an "explosicauter" by *La Propagation Industrielle*, from which the engraving is taken, embodies the application of the theory, held by Messrs. Dufour and Kaynen, that irregular ebullition is a fruitful cause of explosion in steam generators; this irregularity proceeding from excessive production of steam at one part of the boiler and the little or no production of steam at another. Primarily, this results from the immobility of the water in the boiler; and the object of the apparatus represented in the cut is to secure the agitation or circulation of the water. This is done by raising a portion of the same within the boiler and then letting it fall again.

A pipe, *a*, has at its lower end a curved portion plunged below the water level, while the upper part, extended above the boiler, terminates in a chamber containing a plunger, *b*. This plunger is suspended from a lever, *c*, which in part is held in equilibrium by a counterweight, *d*. Within the previously named chamber, *c*, is also arranged another lever, *f*, provided with the counterweight, *g*, and in gear or



connection with a pawl, *h*. Upon the chamber is arranged the valve and valve-chest, *k*, and also the valve at *l*, capable of being operated by hand. The space above the valve, *k*, communicates by a small tube, *m*, with the steam space of the boiler. By working the valve, *l*, the water in the boiler is caused to rise in the pipe, *a*, which consequently lifts the plunger, *b*. This movement of the plunger, acting through the pawl, *h*, actuates the lever, *f*, to lift the valve, *k*. This admits steam from the boiler into the chamber, which of course forces the water into the pipe, *a*, downward into the boiler. This done, the plunger, *b*, resumes its original position; the valve, *k*, comes back to its seat; and the pawl, *h*, is brought into such relation with the lever, *f*, as to repeat its action thereon when the plunger is again moved upward. The repetition of this proceeding, by the successive manipulations of the valve, *l*, to the desired extent, produces the requisite agitation of water in the boiler. The intermittent admission of steam above the valve, *k*, is controlled by another valve in the pipe, *m*, similar to the one, *l*, by which the chamber is in like manner intermittently made to communicate with the atmosphere. The two valves last mentioned permit the working parts of the apparatus to be isolated

from the boiler for repairs, etc., without interfering with the use, at the same time, of the boiler itself.

The advantages claimed for the means of insuring quasi-circulation or agitation of the water are as follows:—It will operate under great pressures; independent of the degrees of pressure; the extent of the agitation can be definitely and readily adjusted or controlled.

The quantity of steam lost in the use of the apparatus is very small, inasmuch as it is frequently sufficient if the rise and fall of water in the pipe is not oftener than three or four times per minute. It may, however, be operated when desired to the extent of fifteen times per minute.

The California Silk Manufacturing Company.

Those who have hesitated heretofore to buy stock in this company, being desirous of first seeing the factory of the company equipped with machinery, would do well to take a run out to South Francisco on the street cars, and examine the prospects for themselves. The new manager, Mr. James Leigh, who has but recently arrived from the East, has been engaged now during the last two weeks in placing the machinery in position. Everything necessary to the skillful and successful working of the factory depending upon the operative superintendent, the company are certainly fortunate in having secured the services of Mr. Leigh who resigned a lucrative position as manager of the Singer Sewing Machine Silk Factory at the East. With a reliable President, Secretary, and Treasurer, and an efficient Board of Trustees, this company, after emerging from the difficulties which invariably beset all new enterprises, may be found establishing itself as the foundation of a fortune to several and a means of competence to many.

We opine that many years will not elapse before several rival Silk Manufactories will have sprung up in San Francisco, and at several other portions of the State. The experience of the silk trade throughout the world is one of unquestioned profit to the owners of the stock. We cordially recommend this progressive enterprise to the patronage of our friends, who, to increase its efficiency, should liberally purchase in the company. The capacity of the California Silk Factory is rated at a consumption of 500 pounds of raw silk per week, or 25,000 pounds per annum.

IN GOOD COMPANY.—The New York Tribune alludes to the recent whereabouts of our straying partner in its reports of the N. Y. Farmers Club meeting, May 16th, in the following extract:—The President announced the presence of Mr. Dewey of the Pacific coast, and gave him opportunity to speak for the favored land. Mr. Dewey, in some graceful remarks, alluded to the fact that he, like many others in California, had long read and received benefits from the reports of the club proceedings, and that it was great pleasure to him to be present and get the matter in all its freshness. "It is an agreeable thought," he continued, "that I see here the parent of a similar institution to be founded on the Pacific slope. I remember that some of you, last summer, were impressed with the importance of a first-class agricultural journal for our States, and so urged. That hint has been acted upon, and we have a *Pacific Rural*, that is received with great favor by our farmers. Our climate, soils, seasons, and fruits are so different from yours that, while we can take your teachings as a general guide, we need instructions more precisely calculated for our people and their wants.

SAN FRANCISCO BOILER WORKS.—This new establishment has been instituted by Mr. F. I. Curry, who has started work at 123 and 125 Beale street, between Mission and Howard. Mr. Curry is sole manufacturer of the celebrated "spiral boilers." Having been for some years past foreman of the Vulcan Iron Works, and thus having gained valuable business experience, in addition to his mechanical skill, Mr. Curry feels that he will be able to satisfy his patrons both in regard to the quality of the work done at his place and in the manner of transacting his business affairs. We wish him success.

DOMESTIC ECONOMY.

Chemistry of the Kitchen.

How to Make Soup.

The ordinary dish of soup is an article of diet which is entirely dependent upon boiling for its cooking. Simply bringing the ingredients to a boil, as practiced by many, does not make a soup, but results in a mess, which no one can eat with satisfaction, and has caused a general dislike to soups which, when properly prepared, are the simplest, cheapest, most wholesome, nutritive and delightful article of food. Long protracted boiling is almost as great an evil as the first mentioned one. We will first examine the evils resulting from the foregoing false method of cooking soups, and then proceed to discuss a simple but more rational method.

1st. When soup is not sufficiently hoiled, the meat generally used, being such as is not available for other methods of cooking, remains tough and unpalatable, the liquid watery and insipid, and vegetables raw, hard and uncooked in the center. This mess of stringy meat, greasy water and uncooked vegetables is put before us as soup, and frequently to add to one's disgust, the meat and vegetables by being cooked over too violent a fire, are scorched, imparting a flavor of burnt feather to the loathsome mess.

2d. Let us examine for a moment the compound that has been "well hoiled." Upon entering the house we smell it, for in its long boiling, the steam has carried off out of the pot all the flavor of the meat

and vegetables. Of this we are fully convinced when we sit down to eat, and find we have before us a liquid in which our eyes tell us there are meat and vegetables, but our palates decline to sanction what the eye has seen.

The proper method to prepare soup is, in the first place, having put some water into a pot, add the meat, then place the pot in such a position that it will be kept at a "gentle boil," covering the pot with a pan, such as an ordinary small milk pan, as shown in the accompanying illustration; but of such a size that it will sit down about half way into the pot. The pan must be kept nearly full of water. By this arrangement the steam rising from the boiling soup is surcharged with the volatile flavors of the ingredients, but in place of escaping into the house it comes in contact with the bottom of the tin pan, containing the water, to which it renders up its heat, thereby being condensed and dropping back into the soup. This action will continue for an almost unlimited period, provided the tin pan be replenished with water at such times as it may be required; by this process, not only is the flavor retained in the soup, but the odor is not allowed to escape into the house, and by long boiling, all the skin, tendons, ligaments, etc., which the meats contain, are converted into soluble gelatine, acting as a thickening to the soup, and all of the kreatine (or ozmazone), which is the most valuable portion of the meat, is extracted therefrom, and retained for use. In other methods of cooking, this valuable kreatine is partially decomposed and expelled.

After the meats have been hoiled until all the "gristle" has been decomposed, the excess of grease floating upon the surface can be removed; then add such vegetables as desired, unless the soup is not to be used on the day it is cooked, in which case it can be set aside in a cool place until required. Frequent reheating the "soup stock" is rather advantageous than otherwise, pro-

vided the precaution be taken to use the tinpan with water to preserve the flavor, and such a moderate heat employed as to avoid scorching.

The French, who are the most economical of cooks, use in their soups all the gristle, etc., which they carefully cut from and out of their chops, cutlets, beef steaks, etc., thereby greatly improving their chops, etc; they also add all the bones, from which large quantities of nutritious matter are extracted by the prolonged boiling. Meats that have been over-roasted, etc., will not make good soup, as all the more valuable portions have been either decomposed or expelled.

There is frequently served up (especially at hotels) an article rendered as pungent as possible, and termed soup; to this we protest, as the compound is only an appetizer, and should be classed with hitters, curry, absinth, etc., etc. From what has been said, the value of soups may be stated as follows:

1st. Cheap meats that can be used no other way, on account of tendons, become more valuable than "choice cuts."

2d. Scraps, trimmings and bones become serviceable in lieu of being put into the garbage box.

3d. No portion of the nutritious ingredients is lost by cooking.

4th. Soups are readily digestible, are acceptable to the stomach, and

5th. Are remarkably economical for reasons stated in paragraphs 1, 2 and 3.

How to SWEEP THE FLOOR.—In the days of our Puritan grandmothers, no girl was considered fit to receive proposals of marriage till she could make a good hemlock broom; to know how to make a broom in those old days, we presume, was always preceded by the knowledge of its use. But in these later times, many a young lady not only offers herself in the matrimonial market, but absolutely gets married and undertakes to manage her house without knowing how to use a broom that some one else has made. It requires some science, or at least some skill, to use a broom well, as it does to do anything else.

To use a broom skillfully, the handle should incline forward and not backward, as is often the case. If the top of the broom inclines forward beyond the part next the floor, it will prevent much of the dust from rising into the air, and will carry it along by a gently sliding motion towards the place where it is to be disposed of.

If, on the other hand, the handle of the broom inclines backwards, the dust is sent into the air by a kind of a jerk, to the great annoyance of those who occupy the room, and to the great detriment of everything the apartment contains. More than this, it wears off the threads of the carpet quicker, injures the paint more, if the room is uncarpeted, and destroys the broom sooner, than if the sweeping was done in a more rational way.

How CHINESE COOK RICE.—The editor of the *American Grocer* has recently paid a visit to the Chinese shoemakers at North Adams, and has obtained from them the Chinese method of cooking rice. Their plan for boiling a pound of rice is:

"Take a clean stewpan with a close-fitting top, then take a clean piece of white muslin large enough to cover over the pan and hang down inside nearly to, but not in contact with, the bottom. Into the sack so formed place the rice, pour over it two cupfuls of water, and put on the stewpan, so as to hold up the muslin bag inside, and fit tight all round. Place the pan on a slow fire, and the steam generated from the water will cook the rice. Each grain, it is stated, will come out of the boiler as dry and distinct as if just taken from the hull. More water may be poured into the pan if necessary, but only sufficient to keep up the steam till the rice is cooked. The pan must not be heated so hot as to cause the steam to blow off the lid."

The same effect can doubtless be obtained by using a steamer such as may be found in any well-ordered kitchen.

TALKING AT THE TABLE.—"Is it proper to talk at the table?" By all means. We are aware that some few consider it proper to observe perfect silence while at the table. We do not know how such a horrid custom originated, yet we have a few times been a guest at such tables, but hope never to be again. The table is just the place to talk, and the meal hours should be amongst the pleasantest of the day. Don't talk business and discuss what work shall be done after dinner, but give the time to social chat. This should not prolong the meal inconveniently, but there should be enough of it to prevent the common custom of rapid eating.

Domestic Receipts.

How to SELECT A GOOD SILK.—A piece of good silk should possess three particular requisites—it should be soft, smooth and lustrous. The softer it is the better, provided it is close woven and not flimsy. The best way to determine its softness is to gather it in folds across its width, and observe its appearance. If it be good the folds will be round and soft in outline, like a piece of nice fine flannel; but if it be poor and stiff the folds will present sharp angles and points. Such silk, when made up, will always present angular folds and sharp projections, by which the fibres are easily broken. We all know the difference between the wear of anything with sharp, angular surfaces, and one with rounded, graceful projections. We have said it should also be smooth. This may be tested by any one of delicate touch, by passing the fabric between the thumb and fore finger, when any imperfection or roughness will be readily perceived. One of the chief characteristics of silk is its brilliant gloss—the absence of which is a sure sign of inferiority. A fictitious gloss is sometimes imparted to silk; but that can generally be distinguished from the genuine luster.

To CLEAN AND RENOVATE KID GLOVES.—Make a thick mucilage by boiling a handful of flaxseed; add a little dissolved soap; then, when the mixture cools, with a piece of white flannel wipe the gloves, previously fitted to the hand; use only enough of the cleanser to take off the dirt, without wetting through the glove.

To COOK A SHOULDER OF MUTTON.—Bone the larger half of your shoulder, lard the inside with well seasoned larding, tie it up in the shape of a balloon, lay some slips of bacon in your pan, and upon them place your meat, with 3 or 4 carrots, 5 small onions, 3 cloves, 2 bay leaves, thyme, and the bones that have been taken out; moisten with bouillon, set all on the fire, and simmer for three hours and a half; garnish with small onions.

Mechanical Hints.

To MAKE A SUPERIOR SAND PAPER.—Take a quantity of broken window glass (that which has rather a green appearance on the edge is best;) pound it in an iron mortar; then have two or three sieves, of different degrees of fineness, ready for use when wanted. Take any good tough paper (fine cartridge is the best;) level the knobs and lumps on both sides with pumice-stone; tack it at each corner on a board, and with good clear glue, diluted with about one-third more water than is used generally for wood work, go quickly over the paper, taking care to spread it even with your brush; then, having your sieve ready, sift the pounded glass over it lightly, yet so as to cover it in every part; let it remain till the glue is set, take it from the board, shake off the superfluous glass into the sieve, and hang it in the shade to dry. In two or three days, it will be fit for use.

The paper will be much better than any you can buy—and being frequently mixed with the glass, and colored to deceive the purchaser.

To CLEAN SOFT MAHOGANY, OR OTHER POROUS WOOD.—After scraping and sand-papering in the usual manner, take a sponge and wet the surface to raise the grain; then with a piece of fine pumice-stone, cut the way of the fibres, rub the wood in the direction of the grain, keeping it moist with water. Let the work dry; then, if you wet it again, you will find the grain much smoother, and it will not raise so much. Repeat the process, and you will find the surface perfectly smooth, and the wood much hardened. By this means common soft Honduras mahogany will take a polish equal to fine Hispaniola.

ANOTHER WAY TO CLEAN, AND FINISH MAHOGANY WOOD.—Scrape and sand paper your work as smooth as possible; go over every part with a brush dipped in furniture oil, and let it remain all night; have ready the powder of the finest red brick, which tie up in a cotton stocking and sift equally over the work the next morning, and, with a leaden or iron weight in a piece of carpet, rub your work well the way of the grain, backwards and forwards, till it has a good gloss. If not sufficient, or if the grain appears any way rough, repeat the process. Be careful not to put too much of the brickdust, as it should not be rubbed dry, but rather as a paste upon the cloth. When the surface is perfectly smooth, clean your work off with a rubber of carpet, and fine mahogany sawdust. This process will give a good gloss and face to your work, and make a surface that will improve by wear. Indeed, by this process, soft Honduras mahogany will have the appearance of Spanish.

LIFE THOUGHTS.

We should beware of judging ourselves by what others think of us.

He who would stop every man's mouth must have a great deal of meal.

The more you exercise your memory the better and more reliable it will become.

An active life is the best guardian of virtue, and the greatest preservative of health.

Have the courage to provide entertainment for your friends within your means, not beyond.

A SINCERE confession of our ignorance, is one of the fairest and surest testimonies of our judgment.

It is always in our power to make friends by smiles; what folly then, to make an enemy by frowns.

A FIRM faith is the best divinity; a good life is the best philosophy; a clear conscience the best law; honesty the best policy; and temperance the best physic.

An honest reputation is within the reach of all men; they obtain it by social virtues, and by doing their duty.

CONTENT and patience are the two virtues which conquer and overthrow all anger, malice, wrath and back-biting.

GRIEF knits two hearts in closer bonds than happiness ever can; and common suffering is a far stronger link than common joy.

GOETHE said: "I must confess I should not know what to do with eternal bliss if it did not offer me new problems and new difficulties to be mastered."

EDUCATION.—Where education has been entirely neglected, or improperly managed, we see the worst passions ruling with uncontrolled and incessant sway. Good sense degenerates into craft, and anger rangles into malignity. Restraint, which is thought most salutary, comes too late, and the judicious admonitions are urged in vain.

A Beautiful Allegory.

A traveler who spent some time in Turkey relates a beautiful parable which was told him by a dervish; and which seems even more beautiful than Sterne's celebrated figure of the accusing spirit and recording angel.

"Every man" said the dervish, "has two angels, one on his right shoulder and one on his left. When he does anything good, the angel on the right shoulder writes it down and seals it, because what has been done is done forever. When he does anything evil, the angel on his left shoulder writes it down and waits till midnight. If before that time the man bows his head and exclaims, 'Gracious Allah! I have sinned—forgive me!' the angel rubs out the record; but if not, at midnight he seals it, and the angel on the right shoulder weeps."

YOUNG MEN.—Most young men consider it a great misfortune to be poor, or not to have capital enough to establish themselves at their outset of life in a good business. This is a mistaken notion. So far from poverty being a misfortune to him, if we may judge from what we every day behold, it is really a blessing; the chance is more than ten to one against the youth who starts with plenty of money. Let any one look back twenty years, and see who commenced business at that time with abundant means, and trace them down to the present day—how many of these now boast wealth and standing? On the contrary, how many have become poor, lost their places in society, and are passed by their own boon companions, with a look which painfully says, I know you not!

YOUNG men, learning business, hopeful of the future, a word with you! Cultivate and practice civility: It costs so little and is worth so much! A young clerk with civility, already has a stock of goods of his own. Regarded as mere policy it is the next best thing to honesty; and like honesty it is good for its own sake. An uncivil man is necessarily a discontented man, a discomfort to himself. We beg leave to add a new sentiment to the copy book of the period: Be civil and you will be happy!

To BREAK BAD HABITS.—Understand clearly the reasons, and all the reasons why the habit is injurious. Study the subject till there is no lingering doubt in your mind. Avoid the places, the persons, the thoughts, that lead to temptation.

Frequent the places, associate with the persons, indulge the thoughts, that will keep you away from temptation.

Keep busy. Idleness is the strength of bad habits.

Business Cards.

A NEW PATENT.

If you want a superior set of **TEETH** on Old, Rose-Pearl, or Pyroline, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN, NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m



JOS. THORNHILL, BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, J. THORNHILL, 1012 Mason St., near Green, will be promptly attended to. 2v21-3m

JOHN ROACH, Optician,
Has removed from 322 Montgomery street to
510 Washington street.
East of Montgomery.
Surveying Instruments made, repaired and adjusted 2v17-3m

Farmers and Mechanics BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 1v16-3m

BARTLING & KIMBALL, BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO, 1v12-3m

SAN FRANCISCO CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street. 2v

SAN FRANCISCO MILL. HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES, SEAL ENGRAVER, AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

THE GIANT POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 2v19

L. SCHUMANN, PIONEER Meerscham Pipe Manufacturer,
No. 341 KEARNY STREET.
Between Bush and Pine streets, San Francisco.
The first and only Manufacturer on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

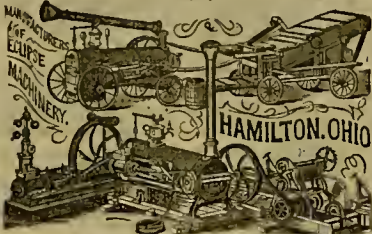
The Merchants' Exchange Bank OF SAN FRANCISCO.
Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.
BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-27

DR. F. HILLER,
Homeopathic Physician and Surgeon.
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. mal-6m

E. J. FRASER, M. D., SURGEON,
808 Stockton street, S. F., Cal.

Eastern Advertisements.

OWENS, LANE, DYER & CO. MANUFACTURERS OF The Eclipse Saw Mills,
Combining **THREE PATENTED** Improvements
Essential to *The Well Working of* Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery,
With the celebrated
STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

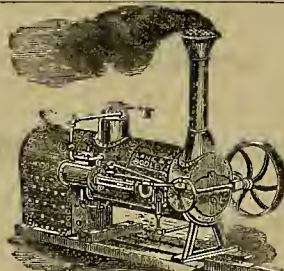
Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier. You cannot take hold of it too confidently, and you can warrant your customers that it is Unequaled. For Whiteness and Brilliance of Flame, Economy in the use of Oil, Freedom from Smoke or Smell, Reliability in Wind and Motion, Coolness of Burner and Oil Cup, and Impossibility of Heating or Explosion, For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the Complete Satisfaction it Gives to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render All other Kerosene Lanterns so Disagreeable, Unreliable, Wasteful and Dangerous. Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 and 45 FRANKLIN STREET, CHICAGO.

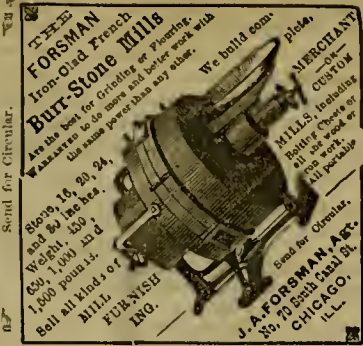
An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? mal8-3m



LANE & BODLEY, STATIONARY AND PORTABLE STEAM ENGINES, PREMIUM CIRCULAR SAW MILLS -AND- MILL MACHINERY.

PATENT INDEPENDENT AND SIMULTANEOUS
WROUGHT IRON HEAD BLOCKS,
Patent Lath Machinery,
SHINGLE MACHINES.
SAFETY POWER ELEVATOR.
LANE & BODLEY'S PATENT
POWER MORTISER,
BLANCHARD'S SPOKE LATHE,
Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery,
SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,
With Self-Lubricating Journal Boxes,
WE HAVE
Three Hundred Pulley Patterns
ONE HUNDRED HANGER PATTERNS,
OF UNIFORM STYLE AND WEIGHT.
Descriptive Circulars & Price Lists furnished on application to
LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.

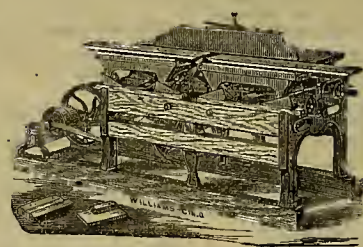


STOUT, MILLS & TEMPLE, PROPRIETORS OF THE GLOBE IRON WORKS,
DAYTON, OHIO.

Hydraulic ENGINEERS, Patentees AND Manufacturers
OF THE Per cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. mal1-6m

Improved Universal Wood Worker



Jointing, Rabbing, Beveling, Panel-Raising, Gaining, Planing out Wind, Smoothing, Planing, Circular Moulding, Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing, THICKENING, MAKING, MOULDINGS, Sash, Door and Blind Work, Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern Invention.
Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mal1-6m

PORTABLE MILLS.
GRIST MILL, Two Run of Stone Complete for \$1,200.
FOR CORN MEAL, WHEAT FLOURING and Stock Feed, Bolts, Smutlers, Corn Shellers, Flour Packers, Hominy Mills, Belting, Picks and Mill Work generally.
Send for Descriptive Pamphlet. mal1-3m
ISAAC STRAUB & CO., Cincinnati, Ohio.

Phoenixville Bridge Works OF PENNSYLVANIA.
CLARKE, REEVES & CO., ENGINEERS AND BUILDERS.
NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new
Album of Designs,
showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-ly

Established 1843.
LOUIS ESPENSCHIED, WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO. CLEVELAND, O. LOUISVILLE, KY.

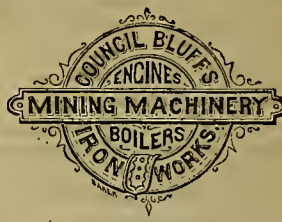
Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE the above assertions.

67 SAFES Delivered in San Francisco at Cincinnati Prices.
Send for Catalogue. mal1-6m



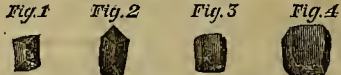
SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any shoe before introduced.

Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late Improvements.
Send for prices and information. Address
O. F. HENDRIE, Prest, R. J. CORY, Secy & Treas.
1v23-3m eow Council Bluffs Iowa.
[ESTABLISHED 1820.]

DICKINSON'S Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Rolls, Emery Wheels, Grinding Stones, Conglomerate, Drilling Rock, Sawing or Working Stone, Trueing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

YOUNG LADIES' SEMINARY, BENICIA.

The Twentieth Annual Session of this well known institution will commence on the
26th day of July Next.
Previous to that date there will be a complete renovation of the establishment. A fine School Room and many other improvements will be added, and new furniture, carpets, bedding and apparatus supplied.
The course of study and mode of instruction will be such as the best modern culture demands; and in every genuine advantage of school and home, the institution will prove its claim to a place in the first rank.
For particulars address
19v1-1mbp REV. C. H. POPE, Benicia, Cal.

POPULAR LECTURES.

Mathematics.

[Prof. W. F. Welcker before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Sixth Series. Reported expressly for the PRESS.]

LECT. I. May 27.—In commencing his lecture, the Professor referred to the nature of his subject, which was undoubtedly distasteful and even repulsive to the majority of persons, and therefore a very difficult one for a popular lecture.

Great Importance of Mathematics.

Mathematics is very commonly called the science of quantity,—which treats of those properties and relations of things which can be measured. But it may also be called the *science of truth*, of pure logic. In all other discussions we can draw no absolutely certain conclusions; there is always some doubt or possibility of error. In mathematical reasoning everything is sure, and it admits of no doubt.

The study of mathematics ought to stand high, on account of the great utility of the subject. Leaving aside the consideration of it as a means of training the mental powers, in which it pre-eminently excels, it affords the great means of investigation. All arts, sciences and occupations of men depend on it. Its influence pervades every class and condition of society, and every pursuit. By its aid the mariner is enabled to push boldly out to sea, trusting to the faithful compass to lead him through pathless wastes to his destination. By its aid we can weigh worlds, can measure the speed of light, which travels to us from the sun at the inconceivable velocity of 90 millions of miles in eight minutes; can measure the microscopic wonders of a drop of water,—individuals, millions of which piled together would not make an object as large as a grain of sand, and thousands of which can swim together through the eye of a needle.

Why so Distasteful to the Many.

If it is so important, the question naturally occurs as to why it is so distasteful to the majority of persons. The cause of this is to be found in the manner in which it has been treated. Until of late the study has been confined to the few, to persons of the highest power and training of mind, and the treatises on the subject have been written for these alone, and written in such a manner as to exercise the thinking powers of even these few. Mathematical works have not been made comprehensible by the many. Indeed, learned mathematicians have been known to maintain that the study should not be made easy, because then it would not train the mental faculties.

So arithmetic, until lately, has been taught in dry treatises and by what are called "sums," which are in fact puzzles contrived purposely to be as difficult of solution as possible. We should judge most unfavorably of a pioneer, whom we had sent to find a road through an unexplored region, and who should leave only such marks for us to follow, and at such great distances, that they were almost as difficult for us to find as was the way originally for him. We wish him to make our path easy. And in the same way we need aids in the study of mathematics,—to ease our way, not to set up puzzles for us to solve.

To Prof. Davies the lecturer would award the highest tribute of praise for being the first to popularize and simplify this important study.

Descriptive Geometry.

After his introductory and general remarks on mathematics, the Professor came to that particular topic, descriptive geometry, of which he proposed to treat especially. He explained the objects of this branch, its general methods and its rudiments. The nature of the subject, although a most important one, precludes the possibility of condensing the explanation. Only a full, verbatim report, accompanied by diagrams, would give a fair idea of the lecture; but such a report would occupy much too large a space in our columns.

THE HYDE ROAD STEAMER, of which we spoke last week, in its trial at Sacramento drew *three* of the State Capitol columns, or a total load of 39 tons. And, what is more remarkable, it drew this load for some distance with only one driving wheel in gear! This speaks well for the capabilities of the machine.

ST. LOUIS BRIDGE COMPLETED.—The great steel bridge across the Mississippi river at St. Louis was completed on the 11th of April. This bridge is one of the greatest mechanical structures in the country, having 11 piers, 2 abutments, and the largest draw span in the world, being 384 feet in length, and costing \$1,000,000. The bridge contains two roadways, one for the railroad track and one for foot and wagon travel. In addition to the draw span are two spans 250 feet wide in the centre, to admit of the passage of rafts. The completion of this bridge will greatly facilitate trade in St. Louis, which city is fast assuming great importance as an iron manufacturing center, and which already surpasses Chicago in the extent of its grain trade. The development of the mineral wealth of Missouri, which is yet in its infancy, but in which are included almost all the metals of commerce in inexhaustible supply, will serve as an additional source to ensure great prosperity to this firmly established prosperous trade center. —*U. S. Min. & R. R. Reg.*

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

W. H. MURRAY—Eastern States.
M. B. STANN—Pacific Coast.
THOS. POYZER—California.
Wm. J. CLARK—California.
L. P. MCCARTY—California.
E. P. HICKS—California.
A. C. KNOX, City Soliciting and Collecting Agent.

READERS will favor ourselves and advertisers by mentioning the fact when they obtain information from our columns.

COUGH AND COLDS ARE OFTEN OVERLOOKED. A continuance for any length of time causes irritation of the Lunge or some other chronic Throat Disease. "Brown's Bronchial Troches" are offered with the fullest confidence in their efficacy, giving almost invariably sure and immediate relief.

Owing to the good reputation and popularity of the Troches, many worthless and cheap imitations are offered, which are good for nothing. Be sure to obtain the true "Brown's Bronchial Troches." Sold everywhere.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate Steam Mills—Bridg Lane, London. Export Chicory Mills, Bruges, Belgium. 1625-ly

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the new blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m

JOHN F. LOHSE, Secretary.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Train except Sunday	Express Train Daily	MAY 1, 1871.	Express Train Daily	Passenger Train except Sunday
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:50 P.M.
5:30 P.M.	9:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.
7:30 P.M.	12:15 P.M.	Stockton	1:42 P.M.	6:35 P.M.
9:35 P.M.	2:00 P.M.	Sacramento	11:4 A.M.	7:00 A.M.
	4:10 P.M.	Marysville	9:10 A.M.	
	9:00 P.M.	Sesma	4:20 A.M.	
	2:20 P.M.	Sacramento	11:45 A.M.	
	5:22 P.M.	Coalinga	8:45 A.M.	
	1:15 A.M.	Rego	1:00 A.M.	
	9:10 A.M.	Winnemucca	4:05 A.M.	
	12:00 P.M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:10 A.M.	Ordin	5:15 P.M.	

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 9:10 a. m. daily (except Sunday), and 3 P. M. daily. Returning leave San Jose at 7:30 a. m., daily, and at 3:30 p. m., daily (except Sundays).

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, "6:50, 8:00, 9:10, 10:20 and 11:40 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 5:30, 8:30, and 11:30 p. m. 10:30, 11:10 and 3:00 to Oakland only. LEAVE OAKLAND, "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m. LEAVE BROOKLYN, "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00, 10:15, 11:40, and 12:00 p. m., 1:00, 3:00, 4:00, 5:15, 5:30, 8:30, and 11:30 p. m. LEAVE ALAMEDA, "7:20, 9:00, 10:15, 11:40, and 12:00 p. m. LEAVE FRUIT VALLE, "5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:40 and 5:30 p. m.

*Trains do not run Sundays.

T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'r and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line
From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh,
Harrisburg,
Philadelphia
and New York

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington City.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest view among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket Office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central R. R., Pittsburgh, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. EHRINGER, Jr., Travelling Agent,
4v22-1y San Francisco, Cal.

Yosemite

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

C. P. R. R. Office, 422 California Street.
C. & N. W. Ry. Office, 445 California Street.
C. B. & M. R. R. Office, 214 Montgomery Street.
C. R. 1 & P. R. Office, 208 Montgomery Street.
K. O. St. J. & O. B. R. R. Office, 306 Montgomery Street.

Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CATYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer,

D. V. PHELPS,
San Leandro, Alameda County, Ca
al1y-awbp

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be put in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office.

We had sought most every place in the city to find suitable eye-glasses, but found nothing but inferior ones until we entered the store of O. MULLER, 205 Montgomery street, where we were gratified to procure a superior article at a low price.

Scientific and Practical BOOKS

—ON—

MINING, METALLURGY, ETC.

BY GUIDO KUSTEL

MINING ENGINEER AND METALLURGIST.

Published and Sold by

DEWEY & CO.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver, 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit, by an author whose reputation is unsurpassed in his specialty.

Price \$2.50 coin, or \$3 currency, postage free.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin.

For single copies of the above works, or for the trade, address

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office San Francisco.

The Scientific Press, Established 1860, is a Large, Able Edited and Liberally Illustrated Weekly—the Best PRACTICAL MINING AND MECHANICAL JOURNAL in America. \$4 per annum. DEWEY & CO., Patent Agents, Engravers and Publishers, San Francisco.

THE

QUARTZ OPERATOR'S HAND-BOOK,

BY P. M. RANDALL

REVISED AND ENLARGED EDITION.

CONTENTS:

APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power. ASSAY—Mechanical Assays, Dry Way of Assay, Hard Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur. BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW-PIPE—EXAMINATION OF MINERALS. GOLD—Treatment of Ore Containing Gold: By Smelting; By Amalgamation; By Chlorination. MILL—STAMP—SLIVER—ROLL. MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of. MINES—VENTILATION OF. QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Tappets, Cams, Cam-Shafts, Stamps, Dies, Screens, Quizzes, Grinders and Amalgamators, Wheeler & Randall's Excelsior Grinder and Amalgamator, Separators, Wheeler & Randall's Conoidal Separator, Concentrators, Wheeler & Randall's Eureka Concentrator, The Wheeler and Randall Tabular Concentrator and Amalgamator, Retorts, Gold Retorts, Silver Retorts, Crucibles, Ingot Molds. REDUCTION AND CONCENTRATION OF ONES—DRY WAY. ROASTING—Heaps, Furnaces. SALTING. SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting; By Solution; By Amalgamation; Extraction of Silver from coarse Copper, Extraction of Silver from Copper Matte, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plate, Cupellation of Gold and Silver, Refining of Gold and Silver. TABLES.

Sold, Wholesale and Retail, at publishers' rates, by DEWEY & CO., Proprietors SCIENTIFIC PRESS, Patent Agents, Engravers and Publishers, San Francisco. Cloth bound, 175 pages. Price, \$2.

HIBBERD, SANBORN & CO.,



South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Iron Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters. 21v22-6m.

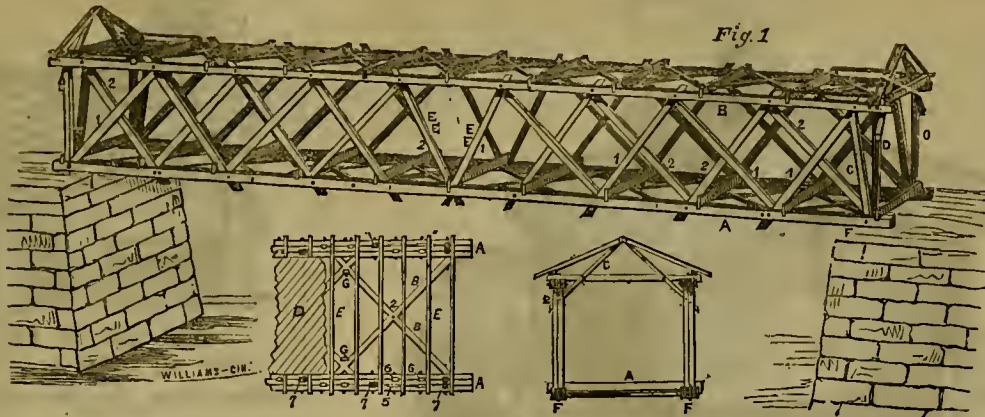
CO-OPERATIVE UNION

Grocery and Provision Store

Removed to 722 Market street, bet. Kearny and Dupont SAN FRANCISCO.

apl-1f

PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points: Being built of wood entirely, they are not affected by change of temperature. The timber used is placed so directly in the line of strain, that less material is required to support the same load. It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH of SPAN. Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

W. H. GORRILL, President.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.
MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

THE OFFICE OF
"THE BUREAU OF MINES"
AND
Mining Statistics of the Pacific Coast
IS LOCATED FOR THE PRESENT AT
No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the Registry of Mines.

Parties desiring to communicate by letter, will obtain
Prompt and Reliable Information
Respecting Mines and Mining Property, by addressing
E. P. HUTCHINS,
Secretary of "Mining Bureau Pacific Coast,"
San Francisco, Cal.,
Care of Lock Box 406.

22v-18-4f

SUBSCRIBERS OF THE "PRESS,"
Who desire Paul's New Pamphlet,
"Wastage of Precious Metals—Wet and Dry
Workings of Ores—Electric Settlers—
Pulverizing Barrels," Etc.,
Can have the same free of expense by forwarding
address to
ALMARIN B. PAUL,
206 Front Street, San Francisco.

jun3-2w

"PAIN KILLER"
PROP.
1840 1870

The "PAIN KILLER" may justly be styled the great medicine of the world, for there is no region of the globe into which it has not found its way, and been largely used and highly prized. Moreover, there is no climate to which it has not proved to be well adapted for the cure of a considerable variety of diseases; it is a speedy and safe remedy for burrs, scalds, cuts, bruises, wounds, and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, it is admirably suited for every race of men on the face of the globe.

Another significant fact, that notwithstanding the long period of years that the "Pain Killer" has been before the world, it has never lost one whit of its popularity, but on the contrary, the call for it has steadily increased from its first discovery, and at no previous time has the demand for it been so great, or the quantity made been so large, as it is to-day.

Another significant fact, is that nowhere has the Pain Killer ever been in higher repute, or been more generally used by families and individuals, than it has been here at home, where it was first discovered and introduced. That the Pain Killer will continue to be what we have styled it, THE GREAT MEDICINE OF THE WORLD, there cannot be the shadow of a doubt.—*Providence Advertiser.*

CAUTION.
BETTS'S CAPSULE PATENTS
are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous. BETTS'S being the original Inventor and Sole Maker in the United Kingdom.
1, WHARF ROAD, CITY ROAD, LONDON, AND
BORDEAUX, FRANCE.

To THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanics' Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL to OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care J. H. GILMORE, San Francisco.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company—Location
of Works, Grass Valley, Nevada County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the twenty-third day of May, 1871, an assessment of (No. 2) of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 23 Merchants' Exchange, San Francisco.
Any stock upon which said assessment shall remain unpaid on Monday, the twenty-sixth day of June, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventeenth day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **DAVID WILDER**, Secretary.
Office, No. 23 Merchants' Exchange, California Street, San Francisco, Cal. 21v22-1m

Altona Number One Gravel Mining Company.
Alta Hill, Grass Valley, Cal.
The first annual meeting of the stockholders in the above named company will be held at their office, No. 23 Merchants' Exchange, San Francisco, on Thursday, July 6th, 1871, at 2 o'clock P. M., for the election of Trustees, and the transaction of other business. By order of the President, **DAVID WILDER**, Secretary, jun3-5w

Hanscom Copper Mining Company.—Location
of Works, Low Divide District, Del Norte County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of April, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said company, payable on and after the 6th day of May, at the Secretary's office, 21st Street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 10th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of June, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **JAMES BIDDOLPH**, Secretary.
Office Golden State Iron Works No. 21 and 23 First St. San Francisco, 18v22

Kincaid Flat Mining Company—Tuolumne
County, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of April, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, No. 221 Clay street, San Francisco.
Any stock upon which said assessment shall remain unpaid on the 10th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 1st day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **N. C. FASSETT**, Secretary pro tem.
Office, 220 Clay street, San Francisco. 19v22-4w

Latawana Mining Company, near Hamilton
City, White Pine, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of May, 1871, an assessment of Twenty Cents (20) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, 614 Merchant street, Room 25, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 22nd day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 10th day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **A. MARTINON**, Secretary.
Office, 514 Merchant street, Room 25, San Francisco, California. 20v22-4w

Mauntau Silver Mining Company—
Location of works, White Pine District, State of Nevada.
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 24th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B. O. Hodge.....	18	1000	\$50 00
B. O. Hodge.....	29	50	2 50
B. O. Hodge.....	53	20	1 00
B. O. Hodge.....	51	200	10 00
B. O. Hodge.....	52	250	12 50
B. O. Hodge.....	54	600	30 00
Washington Ayer.....	23	100	5 00
Justus Struwer.....	26	150	7 50
George Hearst.....	32	100	5 00
Wm. M. Hayne.....	39	325	16 25
Wm. M. Hayne.....	40	500	25 00
Wm. M. Hayne.....	41	500	25 00
Wm. M. Hayne.....	42	500	25 00
Wm. M. Hayne.....	43	500	25 00
Wm. M. Hayne.....	44	250	12 50
Wm. M. Hayne.....	45	100	5 00
Wm. M. Hayne.....	47	50	2 50
Wm. M. Hayne.....	48	50	2 50
Wm. M. Hayne.....	49	50	2 50
Wm. M. Hayne.....	50	1000	50 00
Mrs. A. F. Black.....	51	1084	54 20
Mrs. A. F. Black.....	58	250	12 50
Mrs. C. J. Ferman.....	59	560	28 00
Richard Colburn.....	60	500	25 00
E. J. Ryan.....	65	106	5 30
J. M. Buffington.....	66	50	2 50
J. M. Buffington.....	67	500	25 00
J. M. Buffington.....	68	1700	85 00
J. M. Buffington.....	69	500	25 00
Henry L. Davis.....	70	750	37 50

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company, 37 New Merchants' Exchange, California street, San Francisco, on the 19th day of June, 1871, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants' Exchange, California street, San Francisco, jun3-3t

Mina Rica Mining Company—Location of
Works, Auburn Mining District, Placer County, State of California.
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 2) levied on the 25th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Desmond.....	9	25	\$5 00

And in accordance with law and an order of the Board of Trustees, made on the 26th day of April, 1871, so many shares of said stock as may be necessary will be sold by public auction, at the office of the company, No. 418 California street, Room No. 2, third floor, San Francisco, Cal., on Tuesday, June 20th, 1871, at 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.
GEO. R. SPINNEY, Secretary.
Office, No. 418 California street, Room No. 2, third floor, San Francisco, Cal. jun3-3t

Mohawk & Montreal Cons. G. & S. M.
Co., Meadow Lake, Nevada County, State of California.
NOTICE.—A special meeting of the stockholders of the above named company for the purpose of electing Trustees and such other business as may properly be brought before the meeting will be held on Tuesday, the 27th day of June, 1871, at 3 o'clock P. M., at the office of R. Wegner, No. 414 California street, San Francisco, Cal.
JERRY WEALEN, } Trustees.
P. G. VENARA, }

Yosemite Consolidated Mining Company—
Location of Works, Santa Fe District, Lander County, State of Nevada.
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 4) levied on the twelfth day of April, 1871, the several sums set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brandon, Peter.....	23	5	\$ 5 00
Brandon, Peter.....	34	20	20 00
Brandon, Peter.....	167	25	25 00
Brandon, Peter.....	163	60	60 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold by public auction, at the office of Maurice Dore & Co., auctioneers, 327 Montgomery street, San Francisco, Cal., on Monday, the 19th day of June, 1871, at the hour of 12 o'clock noon of said day, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.
DAVID WILDER, Secretary.
Office, No. 28 Merchants' Exchange, California street, San Francisco, California. 22v22-3w

Nevada Land and Mining Company.—Lo-
cation of Works, Steptoe, Johnson and Latham, Anlelope and Clifton District, Elko County, State of Nevada.
Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold coin, to the Secretary, at his office, Room 6, No. 302 Montgomery street, San Francisco, Cal.
Any stock upon which said assessment shall remain unpaid on Thursday, June 8th, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, July 3d, 1871, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees, **WM. H. WATSON**, Secretary.
Office: Room 5, No. 302 Montgomery Street, San Francisco, Cal.

Ophir Copper, Silver and Gold Mining
Company—Location of Works, Ophir, Placer County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of May, 1871, an assessment of sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 30th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **H. G. BRUSH**, Secretary.
Office, No. 314 California street, San Francisco, Cal. 18-4w

Office of Silver Sprout Mining Company,
206 Front street, San Francisco, May 25, 1871.—Stockholders' meeting.
Notice is hereby given, that the annual meeting of the stockholders of the above named company, will be held at the office of the company, No. 206 Front street, San Francisco, on Tuesday, June 21st, 1871, at the hour of 12 o'clock noon. (June 3-4w) **T. B. WINGARD**, Secretary.

Pinto Mining Company, Location of Works,
Silmado, Pinto Mining District, White Pine County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of May, 1871, an assessment of twelve and a half cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, D. B. Arrowsmith, 426 Montgomery street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 26th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **D. B. ARROWSMITH**, Secretary.
Office, 426 Montgomery street, San Francisco.

Sierra Iron Company—Location of Works,
Sierra and Plumas Counties, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 17th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold or silver coin, to the Secretary, at the office of the company, No. 428 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 20th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **CALEB T. FAY**, Secretary.
Office, Room No. 7, 428 California street, San Francisco. 20-22-4w

Stockholders' Meeting—Office of the
Rogers Silver Mining Company, San Francisco, May 10th, 1871, in accordance with a resolution adopted at a meeting of the Trustees of the Rogers Silver Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, No. 6 Montgomery street, San Francisco, California, on Tuesday, the 20th day of June, A. D., 1871, at 11 o'clock, A. M., to take into consideration, and decide upon the proposition to increase the capital stock of said company from nine hundred thousand dollars, divided into three thousand shares of three hundred dollars each, the present capital of the company, to fifteen hundred thousand dollars, to be divided into fifteen thousand shares of one hundred dollars each.
GEO. S. MANN,
JOHN BARTON, } Trustees.
G. D. WYMAN,
R. PERRY,

Salamander Gold and Silver Mining
Company, Leon's Ranch, Mill Valley District, Calaveras County, Cal.
Notice is hereby given, that at a meeting of the Trustees of said company, held on the 4th day of May, 1871, an assessment (No. 4) of thirty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, at the office, No. 210 Post street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.
E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco. 19v22-4w

Yosemite Consolidated Mining Company—
Location of Works, Santa Fe District, Lander County, State of Nevada.
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 4) levied on the twelfth day of April, 1871, the several sums set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brandon, Peter.....	23	5	\$ 5 00
Brandon, Peter.....	34	20	20 00
Brandon, Peter.....	167	25	25 00
Brandon, Peter.....	163	60	60 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold by public auction, at the office of Maurice Dore & Co., auctioneers, 327 Montgomery street, San Francisco, Cal., on Monday, the 19th day of June, 1871, at the hour of 12 o'clock noon of said day, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.
DAVID WILDER, Secretary.
Office, No. 28 Merchants' Exchange, California street, San Francisco, California. 22v22-3w

Yosemite Consolidated Mining Company,
Santa Fe District, Lander County, Nevada.
Notice is hereby given that the Annual Meeting of the stockholders in the above named company will be held at their office, No. 28 Merchants' Exchange, California street, San Francisco, California, on Monday, the fifth day of June, 1871, at 12 o'clock M., for the election of Trustees and the transaction of other business. By order of the President, **DAVID WILDER**, Sec. 20v22-3w

Machinists and Foundries.

FULTON
Foundry and Iron Works.
HINCKLEY & CO.,
 MANUFACTURERS OF

STEAM ENGINES.

Quartz, Flour and Saw Mills,
 Hayes' Improved Steam Pump, Brodie's Im-
 proved Crusher, Mining Pumps,
 Amalgamators, and all kinds
 of Machinery.
 N. E. corner of Tehama and Fremont streets, above How-
 ard street, San Francisco. 3-qy

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. HANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.
Steam Engines and Boilers,
 MARINE AND STATIONARY.

IRON AND BRASS CASTINGS
Mining Machinery of Every Description,

And all other classes of work generally done at first-
 class establishments, manufactured by us at the lowest
 prices, and of the best quality.

Particular attention paid to Jobbing Work and
 Repairs.
 N. B.—Sole Agents for sale of HUNTOON'S OLE-
 BRATED PATENT GOVERNOR. GODDARD & CO.
 18v20-3m

UNION IRON WORKS,
Sacramento.
WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,
 CROSS' PATENT BOILER FEEDER AND SEDIMENT
 COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,
 Danbar's Patent Self-Adjusting Steam Piston
 PACKING, for new and old cylinders.

And all kinds of Mining Machinery.
 Front Street, between N and O streets,
 1st SACRAMENTO CITY

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY
 of sufficient capacity to supply their Asphaltum Pipe in
 large quantities.

Are now Prepared to Take Orders
 AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee
 it to stand any pressure required; it is lighter than iron
 pipe and more durable, it is not affected by chemical
 action, cannot corrode, and being glazed imparts no dis-
 agreeable taste to water. To miners and farmers it is
 invaluable; any hole can put it down; it is twenty per
 cent cheaper than iron pipe and ten times more durable.
 For further particulars, apply at the office of the Com-
 pany, Room No. 2, 645 Market street.
 Circulars sent on application. 16v21-4f

PACIFIC
Rolling Mill Company,
 SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
Every Variety of Shafting,
 Embracing ALL SIZES of
 Steamboat Shafts, Cranks, Piston and Con-
 necting Rods, Car and Locomotive Axles
 and Frames

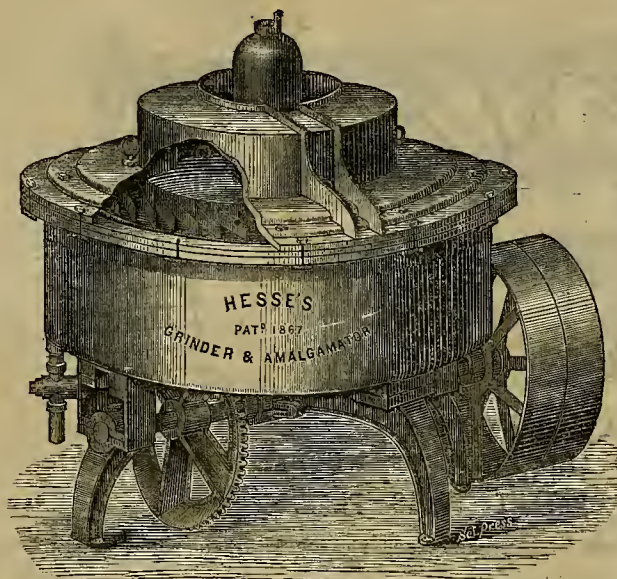
HAMMERED IRON
 Of every description and size.
 Orders addressed to PACIFIC ROLLING MILL
 COMPANY Post Office, San Francisco, Cal., will receive
 prompt attention
 The highest price paid for Scrap Iron 9v143m

The Stetefeldt Furnace.

For information of any description respecting this
 process,

APPLY TO
STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
 4v21-1y San Francisco.

THE HESSE GRINDER AND AMALGAMATOR.


This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

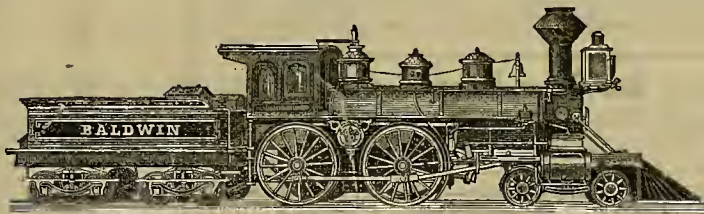
IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

LORD & PETERS,

304 Battery street, San Francisco, Cal.

fell-4f

BALDWIN LOCOMOTIVE WORKS.

M. BAIRD & CO., Philadelphia,
MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD,
GEO. BURNHAM
CHAS. T. PARRY,
EDWARD H. WILLIAMS,
WM. P. HENSLEY,
EDWARD LONGSTRETH.
WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal.

apl-cow26t

CAMERON'S
STEAM PUMPS.

PICKERING'S

Engine Regulators.

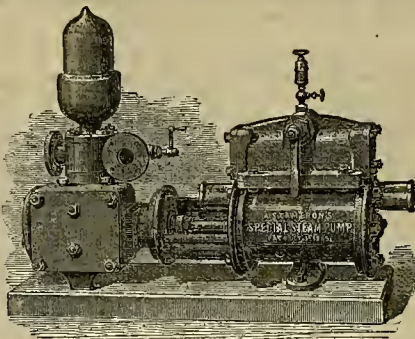
GIFFARD'S

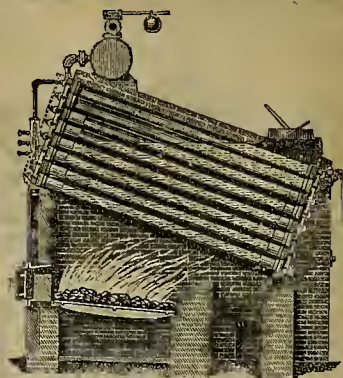
INJECTORS.

BARTOL'S

STEAM TRAP.
Surface Condensers.
DAVID STODDART,

114 BEALE STREET, S. F.


THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT AND HEAVY CASTINGS,
 of every description, manufactured 24v16qr

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
 Howard st, between Fremont and Beale, San Francisco
 2v21-1f


OVER 300 IN USE.

BEST IN THE MARKET.
Engines, Pumps, Etc., Manufactured and
on Hand.

For pamphlets and testimonials address
ROOT STEAM ENGINE CO.,
 Twenty-eighth Street, corner Second Avenue,
 20v22-cow-26t NEW YORK.

GEO. T. PRACY'S
MACHINE WORKS,
 109 and 111 MISSION STREET,
 SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive
 built, running at a high velocity and
 maintaining a uniform speed.
 SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

**Lathes, Planers, Drills, Boring Mills, Mill-
 ing Machines, Etc.,**

Which I will offer at very low rates. Also,

**MORSE'S TWIST DRILLS,
 AND CHUCKS OF ALL KINDS.**

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND
 PUNCHES. 3v21

MACHINERY

— AT —

GREATLY REDUCED RATES.
Miners' Foundry & Machine Works,

 235 TO 245 FIRST STREET,
 SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
 And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
 And better adapted to the wants of the Pacific States
 Ascertain our prices before purchasing. 8v20q

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Soller Makers, Machinists,
 Foundrymen, and Manufacturers of Car Wheels equal to
 the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butlerworth, Lloyd Tevis, Wm. Alford,
 Wm. Norris, Joseph Moore, Chas. E. McLane,
 John N. Risdon.

WM. H. TAYLOR.....President.
 JOSEPH MOORE.....Vice President and Superintendent.
 LEWIS R. MEAD.....Secretary.
 24v17-4y

CALIFORNIA BRASS FOUNDRY,

 No. 125 First street, opposite Minna,
 SAN FRANCISCO.

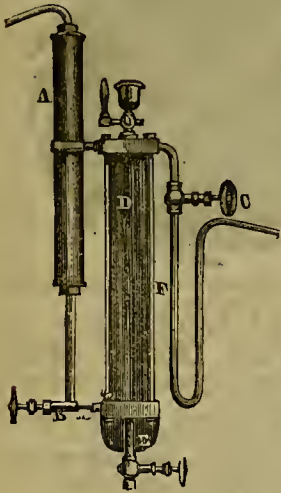
ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal
 Castings, Brass Ship Work of all kinds, Spikes, Sheathing
 Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
 Gears of superior tone. All kinds of Cocks and Valves, Hy-
 draulic Pipes and Nozzles, and Hose Couplings and Con-
 nections of all sizes and patterns, furnished with dispatch.
 PRICES MODERATE. J. H. WEED V. KINGWELL.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills
AND DRILLING MACHINERY,

For Mining, Quarrying, Shafting, Tunneling, Prospect-
 ing, Draining, Orading, Submarine Blasting, Deep Bor-
 ing for testing the value of Mines, and Boring Artesian
 Wells. Office, 318 CALIFORNIA STREET, San Francisco.
 25v20-3m

NELSON & DOBLE,
AGENTS FOR**Thomas Firth & Sons' Cast Steel.**MANUFACTURERS OF
Sledges, Hammers, Stone Cutters, Blacksmiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
10v14qr**California File Manuf'g Co.**437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER.**REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,**
At a saving of 50 per cent. Now Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.
9v18-qr**Machinery.****GARRATT'S CONDENSING LUBRICATOR,**

Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber B. F is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C.
1e18-1f**Varney's Patent Amalgamator.****These Machines Stand Unrivaled.**

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and sellers for themselves, at the office, 229 Fremont Street, San Francisco.

**STURTEVANTS**

PRESSURE

BLOWER,

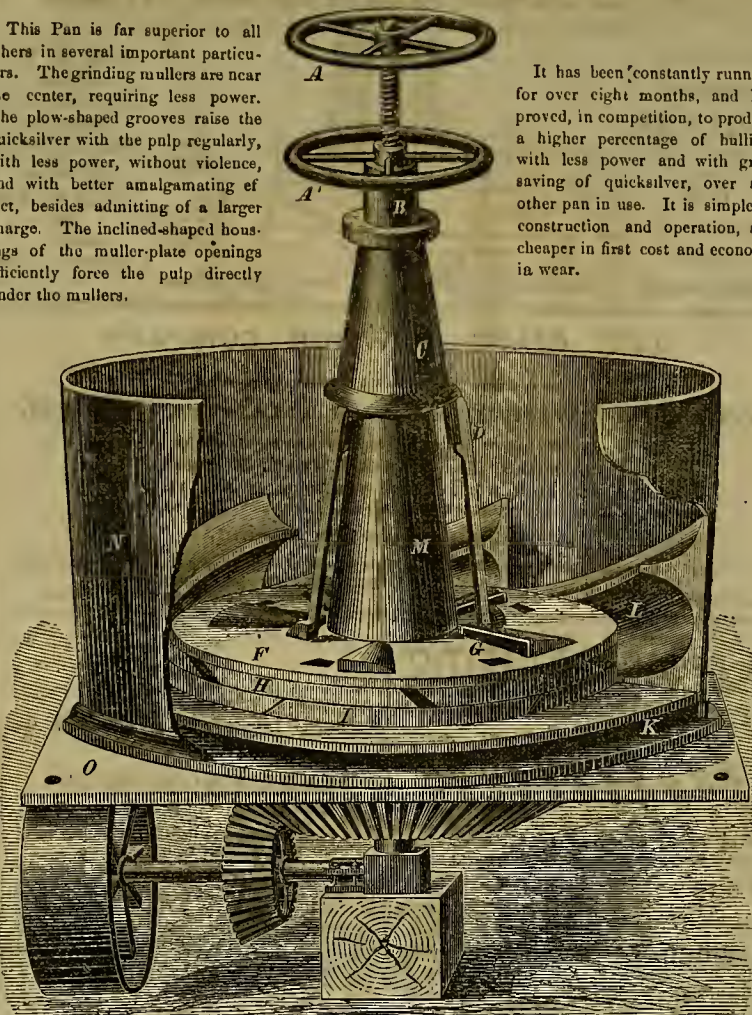
Are for sale by

Berry & Place,112 California st.,
San Francisco,who have the different sizes always in store.
4v22**AHEAD OF THE WORLD.****THE NEW TREADLE POWER,****Just Invented, and used exclusively on the HOWE SEWING MACHINE.**

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best,
Consequently the most Popular Machine in use. The Daily manufacture is over 500 Machines.H. A. DEMING, Agent,
ap15-3m No. 113 Kearny street, San Francisco.**STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.**

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.



It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation.
15v20-1mr, 1am1f**WHY THE WILSON****Patent Steam Stamp Mill****IS THE BEST AND****Most Desirable Mill for Crushing Ores.**

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR**This Mill is Greatly Superior to the**

Ordinary Cam Stamp Mill.

RECOLLECT**This Mill is Fully Guaranteed**

to do and he all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.
For further particulars address**FURMAN R. WILSON,**
San Francisco.**STEAM JET PUMP.****Blakelock & Williams' Patent—For Water, Oils, Acids, Etc.**

The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and averts the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repair; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT, Southeast cor. Tenth & K Streets, Sacramento City Cal. Agents—CHAS. F. BROOK, 117 California st., San Francisco; KEET & BARGION, Stockton. Can be seen at McCaffrey, Sperry & Co's. Boiler Works, S. F. 21v21-1f

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolt- ing Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill Pickers repaired and rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, of all aizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2v22-lyna 41 First st., San Francisco.**Gold Saving Amalgamated Plates.****Miners, Quartz Millmen—Attention.**

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. DEVNISTON, Proprietor.

HAYLAND, HOOPER & CO., Agents, No. 335 Pine St.

Best means yet discovered for saving fine particles of Gold.
20v21-1f**Metallurgy and Ores.****CALIFORNIA ASSAY OFFICE****No. 512 CALIFORNIA STREET.**

One Door West of Montgomery,.....SAN FRANCISCO

J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, etc. 10v20

LOUIS FALKENAU,**STATE ASSAYER,****Analytical and Consulting Chemist,**

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

RODGERS, MEYER & CO.,**COMMISSION MERCHANTS,****ADVANCES MADE**

On all kinds of Ores, and particular attention

PAID TO**CONSIGNMENTS OF GOODS,**

4v16-3m

F. MORRIS,**Practical Assayer and Metallurgist,**

Nos. 30 and 36 Fremont street,

SAN FRANCISCO,Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast.
-18-v22-3m**Richardson & Co., Copper Ore Wharves,****SWANSEA.**RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required.
5v22-1ys**LEOPOLD KUH,**

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,**No. 611 Commercial Street,**

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL.

7v21-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHART.**Ores Crushed, Sampled and Assayed.**Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.
26v21-3m**PLATINUM****Vessels, Apparatus, Sheet, Wire, Etc., Etc.**

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased.

22v18t

Manganese ! Manganese !

We have on hand the Best and Purest article of Powdered Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,**CYANIDE OF POTASS,**

And Chemicals of all kinds at Lowest Prices.

FOR SALE BY**R. H. McDONALD & CO.,**

Corner First and Market Streets, San Francisco.

22v-17-3m

The Patent Wood Horse Collar**AND HAME COMBINED**

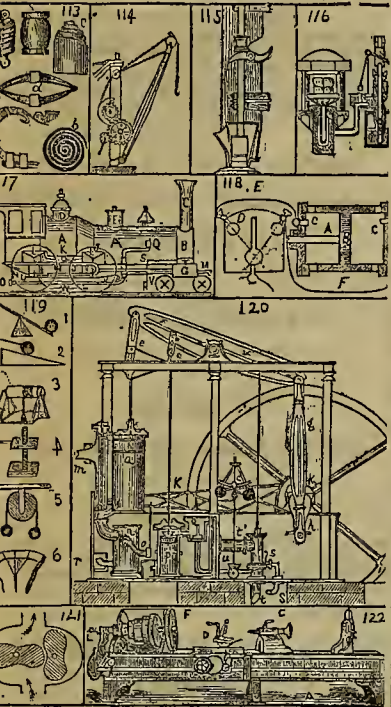
Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never SWEATS or GALLS the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sores of Shoulders**In Three Weeks, Working Every Day.**For further particulars as to price of Collars, etc., apply to or address **WILDMAN & MARBLE,**
No. 30 California Street, San Francisco,
Proprietors for the Pacific Coast.

Agents Wanted.

19v22-2m

Dewey & Co., U. S. and Foreign Patent Solicitors and Counsellors, Scientific Press Office. Principal Agency in the Pacific States. Established 1860.



Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

DEWEY & CO.,
Patent Agents, No. 414 Clay st., San Francisco.

Pacific Insurance Company
No. 222 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire and Marine Insurance.

J. HUNT, President.	A. J. RALSTON, Secretary
WM. ALVORD, Vice-President.	A. BAIRD, Marine Secretary.

The Angel's Quartz Mine

Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP
Sold by BERRY & PLACE,
112 California st., San Francisco. 4v22

O. J. KING, B. KIMBALL, P. D. CORB.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco, [16p]

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.
F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS
of all descriptions,
SOLE
Manufacturers of the
CELEBRATED
SPIRAL BOILER.

22v22-3m

Sheet Iron Work.
of every
DESCRIPTION
done at the
Shortest Notice.
All kinds of
JOBBING
and
Repair
Promptly

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER,

Somewhat slower in its Explosion, which we recommend for
BLANK BLASTING, COAL MINES,
AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.
It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

Price. 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

20v22-3m16p

BANDMANN, NELSEN & CO.,
General Agents, No. 210 Front Street.

For Steam Pipes & Boilers **Hair Felting**

For sale by BERRY & PLACE, Machinery Depot, 112 California street, San Francisco.

Leather Belting,
Boiler Felt,
Belt Studs,
Steam Packing,
Self Oilers,
Linen Hose,
Tubing Scrapers,
Lace Leather,
Planing Mill
and Engineer's
Supplies, Etc.,

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

Page's **Belting**
Patent-Tanned
Leather

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

MARK'S LINEN HOSE
50 CONGRESS ST. BOSTON

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Sturtevant's Pressure BLOWERS
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

MORSE'S PATENT.

BOILER TUBE CLEANER.
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

Blake's Patent Steam PUMPS
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF:

THE MECHANICS' INSTITUTE,
San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion of the Society, on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, H. C. KINGS.

Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf

VENEER CUTTING MACHINE
FOR SALE.

The largest and finest in this country, together with pulleys, belts, shafting, etc., all in perfect order.

Extreme length of cut.....11 feet 2 inches
Extreme width of cut.....29 1/2 inches
Thickness of log.....27 inches
Capacity, 50,000 feet per day, from 7 to 250 veneers to the inch

For further particulars apply to
22v22-1m
R. H. GALFEN, No. 2 Post street.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,

Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. **HYDRAULIC PIPES AND NOZZLES** for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal." Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-1

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing ESTABLISHMENT.

Nos. 17 and 19 Fremont Street, near Market,
MANUFACTURER OF
SPAULDING'S Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect:
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills, Brennan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

RIDER'S Automatic Cut-off Vertical Engines
Manufactured by the Albany St. Iron Works, NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-1y16p

BAIRD'S BOOKS
FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL AND SCIENTIFIC BOOKS, complete to April 16, 1871, 94 pages, 8 vo., will be sent, free of postage, to any one who will favor me with his address.

HENRY OAKLEY BAIRD,
Industrial Publisher, 406 Walnut St., Philadelphia.

MAGAZINES.	P. An.	W. E. LOOMIS, News Dealer
Harper's.....	\$4 00	AND STATIONER,
Atlantic.....		S. E. corner of Sansome and
Godey.....		Washington streets,
New York Ledger.....		SUPPLIES ALL
Blackwood.....	3 00	Eastern Periodicals,
Hours at Home.....		BY THE
Good Words.....		
Peterson's.....	5 00	
Lady's Friend.....		
Harper's Weekly.....		
Chimney Corner.....	6 00	
Literary Album.....		
London Society.....	15 00	Year, Month, or Number.
All the Year Round.....		
London Ill. News.....		

PATENT BROKERS.—Inventors having valuable patents and needing reliable assistance in selling them should consult **WEISTER & CO.,** No. 17, New Montgomery street, under the Grand Hotel, San Francisco.

Hubbard, Lippincott, Bakewell & Co.,
MANUFACTURERS

J. E. Emerson's New Patent Flange Toothed Circle Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippincott Tuttle's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD, BAC & CO. and LIPPINCOTT & CO.

Also, SHOVELS, AXES AND SPADES.

All orders from the Pacific Coast will receive special attention and be forwarded with dispatch.

Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,
And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPINCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.

Knowles' Steam Pump,
At the Monte Cristo Mining Co.'s Works, in Sierra County, is raising water higher than any other Steam Pump on the Pacific Coast.

All kinds new and second-hand Machinery in stock and supplied.

No. 9, First Street, near Marke, San Francisco, Cal.
23v21-3qal6p

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$1.00
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. CONGDON, Secretary. apl-3m.

HALLIDIE'S
Endless Wire Rope-Way,

For the economical transportation of ORES, LUMBER and other material over difficult roads, or from otherwise inaccessible points.

CONSTRUCTED BY DAVID R. SMITH,
Civil and Mechanical Engineer,
519 Front street, San Francisco, by contract or otherwise.

Communication by letter to Lock Box 1161, San Francisco Post-office. fe18-tf-16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 10, 1871.

VOLUME XXII.
Number 23.

A Portable Railroad.

We have at various times spoken of the Peteler Portable Railroad, which has been used with advantage at various places at the East. To-day we give an illustration which will convey to our readers a clear idea of how this road is constructed and managed.

The objects of this road are manifold. It is particularly adapted for making excavations, filling low land, for making wagon roads and railroad beds, for mines and quarries, for improving and cultivating farms, for transporting building materials, etc., etc.

The main track is made up of 20-foot sections, each section consisting of two parallel wooden rails, on the upper surface of which are riveted iron straps. These sections are connected to each other by simple fastenings, such as hook catches and eyes, so that they can be readily taken apart or connected. The rails are laid on the surface of the ground without sleepers, and with such ease that, it is stated, on level ground, two men can put down 1,000 feet in an hour. To complete the road, curves, branch-roads, frogs, bridges, turn-tables, etc., are added, all the parts being principally of wood and light enough to be handled with ease by a few men. A complete track of 1,000 feet, with all its appliances, can be easily transported on a common road on three 2-horse wagons, or in a single railroad car.

The bridges and rafts are composed of ordinary wooden rail sections, supported by boards, so that, when laid on soft or marshy ground, they will sustain the weight of the cars passing over them, without sinking in. The cars are so constructed that their contents can be readily dumped, and are so low that the operation of loading them is materially facilitated. They can be drawn by horses or men, as required. The track thus constructed readily adapts itself to the formation of the ground, as indicated in the engraving. It can be used at any time, and the workmen need never stand idle because the ground is too soft or too hard. The work can go on at all times and seasons.

As compared with men with wheel-harrows or horses and carts, competitive trials have repeatedly shown a great economy in using this road, besides its being practicable when the others cannot be used. As

compared with ordinary railroad-iron track, it has also peculiar advantages, for it needs no road-bed and no particular skill or amount of time for laying it. Its great distinctive advantage, however, is that it can be laid, taken up and relaid elsewhere in a few moments, and thus a single road may be made to serve the purpose of several fixed ones. It can be carried to each piece of work ready for use, without previous preparation.

The road has been employed for a great variety of work, and the best results have been obtained. In Prospect Park, Brooklyn, N. Y., large quantities of earth were moved to excavate lakes, fill up low places, etc. The cost of moving by this method was 13 cents per cubic yard, against 27 cents by carts, for even a short distance. Manifold examples could be given, but

The track had consequently to be changed and transported very frequently. But notwithstanding all these obstacles, a gang of twenty men filled and moved, on an average, six hundred loads per day, or three hundred cubic yards, the distance varying from fifty to five hundred feet.

The results furnished us denote that this portable railroad is of the greatest importance, and can be used in very many places on our coast with the best results. We call attention to it as a meritorious and labor-saving invention. A company has been formed in New York with the title of the Peteler Portable Railroad Company (office, 42 Broadway, New York city), which will give all further information desired. The success of this company at the East leads us to hope that they may find it to their interest to introduce the road on

the task of sustaining ourselves against strong competition. And we must more than sustain ourselves; we must be able to compete with any competitor and out-rival any rival. With the advantage of a climate adapted for working in, of position and prestige, with ordinary business tact, foresight and discretion, and some encouragement to manufactures and economic industries, we need fear no antagonist.

The library of the Institute has been increased by many valuable works. The financial condition has been bettered during the year. The gross assets amount to \$154,723.10; the liabilities to \$41,182.78; net assets \$113,540.32, or a gain of \$1,312.97 for the year. The mortgage on the building has been reduced \$3,000 and from 12 to 10 per cent. It is hoped that the next Industrial Exhibition will wipe out the indebtedness of the institution.

Eighth Industrial Exhibition.

Arrangements for the forthcoming exhibition have been pushed forward with all the energy possible. The special agent, Mr. J. H. Gillmore, has canvassed the city with excellent results, and reports applications for exhibiting space to the amount of 28,500 feet, more than the whole space occupied in 1869. It will be necessary to enlarge the area of the ground floor. The Bay District Horticultural Society will have a wing to be added to the south side of the Pavilion.

An agent has been sent to Japan for the purpose of obtaining

from that country a full exhibit of its productions, to call attention of its government to the manufacturing facilities of San Francisco, and to obtain the appointment of a Commission to the Fair.

To encourage the study of drawing and designing in the public day and evening schools, special premiums have been offered to the pupils thereof.

Wells, Fargo & Co., the Pacific Mail Steamship Co., the Central Pacific and the California Pacific have generously offered to transport over their respective routes, free of charge, all articles sent for exhibition.

TIMBER LAND BILL.—The citizens of Truckee, a most important lumber center, have resolved at public meeting to call for the passage of Hon. A. A. Sargent's timber-land bill, as a measure greatly needed.



THE PETELER PORTABLE RAILROAD.

we have space here for but one other.

A part of the city of Boston, called the Church Street District, being low, and the drainage imperfect, the city contracted for raising the houses and filling the streets, yards and cellars with gravel, from six to eighteen feet in depth. The gravel was brought into the city by steam cars, and dumped in the most accessible places, and it was at first distributed with wheel-harrows, it being impossible to use horses and dump carts. This method, however, proved very slow and expensive, except for very short distances, and the Portable Railroad was then tried. The work was probably the most difficult that a railroad was ever used for, as obstacles of every nature prevented straight runs, and the cars had to pass through openings in cellars, and around corners into back yards. The grade also varied for main streets and back streets, and for cellars and back yards.

our coast, where there would seem to be a need for some such construction.

Mechanics' Institute.

The annual meeting of the Mechanics' Institute was held on the 1st inst. President A. S. Hallidie read his annual address, which, in its general remarks, was characterized by practical sense and pointedness. He referred to the object of the Institute, the condition of the mechanics of this city, and the influence of the society in elevating this condition. He dwelt on the manufacturing interests, their present extent, their needs and their future possibilities. We have in this city 1,553 factories of all kinds, employing an aggregate capital of \$25,504,767, or with a total outlay of about \$43,900,000, producing material of a value of some \$36,462,400; with a total profit of 34 per cent. per annum. It is evident that we must give up our notions of isolation and

MECHANICAL PROGRESS.

PUNCHING.—One of a series of communications to *Engineering* from "An English Engineer in America," has the following: "Few comprehend the extent to which the matter of punching has been carried. Take, for example, the work at the Elgin Watch Factory. The blank discs for the wheels, after being punched from the sheet metal are perforated, leaving the delicate arms and rim with their edges perfectly square, corners sharp, and the surface so neatly finished that no hand work whatever is applied to them afterwards—in fact so good is the job, that the best hand work cannot approach it. To do such work with any degree of success requires not only a punch and a fitted mathematically perfect, but so arranged that they may be changed and set quickly and the punch guided so as to enter the die true beyond any possibility either from carelessness, or from slack motion in the machine. This hard problem has been beautifully solved by a simple device in which the punch, the die, and the holder for the die, and also guide for the punch are all cast in one piece. It will be seen that this is a complete structure within itself. When used it is put into and the punch receives its vertical motion from a common punching machine, and when another kind is required instead of changing punch and die, the whole thing is changed, neither punch nor die ever being taken out except for the renewal. In making a perfect guide to the punch and insuring its perfect entrance into the die, the difficulties are so great that were it not for the use of Babbitt's metal or its equivalent, it would be hard, if not impossible, to overcome them, but by receiving the die, in its seat, setting the punch in the die, and casting the Babbitt's metal around it, nothing remains to be done except to wear the punch in its guides until it works free. I am not certain but the work is repunched, that is, a punch a trifle smaller than the holes required used first, and afterwards one the exact size, shearing out, as it were, a finished shaving of metal. This plan has been adopted to a great extent in the manufacture of cold punched nuts. The holes in the nuts are punched first by a punch much smaller than the die, and the blanks cut out in a die much too large, then by repunching the holes and forcing the blanks through a die of the right size nuts are made free from scale, beautiful in appearance, perfect in shape and dimensions, and as none but the best iron will stand punching cold, they are of first-rate quality. The punching as a substitute for the milling machine in the construction of gun lock and pistol work has been used to a considerable extent, and it is believed with great success."

A NEW BELTING.—The *National Car-Builders* has the following: "We have been shown specimens of machine belting which, in our judgment, are a great improvement upon any of the kinds in use. The materials of which it is made are steel and rubber, so combined as to make available the strength of the one and the adhesive properties of the other. Belts of any size can be made. The specimens referred to are about four inches in width. In the center is a thin plate of steel, twenty-four gauge, to both sides of which, as well as the edges, the rubber is united by a peculiar process while it is being vulcanized; and so complete is the union of the two materials, that the rubber cannot be separated from the steel in any other way than by cutting or tearing it off. The superior qualities of such a belt, must be manifest to every machinist. The ordinary leather or rubber belting is liable to stretch, owing to the lack of that element which is in this case supplied by the steel. The metallic center prevents any elongation. There is no liability to slack or run off, and consequently no time is lost in taking up. It is not affected by moisture or by changes of temperature; and when one side is worn it can be turned, and the other side will wear equally long, being practically two belts in one. The ends are fastened by two clips with set-screws, without making any holes through it."

ACCELERATED MOTOR FOR SEWING MACHINES.—Dr. W. Chapman read a paper before a late meeting of the Polytechnic Club of the American Institute, describing a motor of his own invention. We quote from the report in the *N. Y. Engineering* for May 16th: "There is a fly-wheel, about nine inches in diameter, and weighing about fourteen pounds, which

is set in motion by turning a crank. Giving the crank five or six turns, it will run about three minutes at the rate of 600 or 800 stitches per minute; then, as soon as it begins to run too slowly, the operator, without stopping the work, turns the crank again. With the ordinary treadle, power is lost in stopping the fly-wheel or checking it at the end of a seam, or in turning the work, crossing other seams, etc.; but in using the motor the motion of the needle is reduced or stopped, and the fly-wheel continues to run, ready to start the needle instantly. The apparatus occupies about one cubic foot of space, and may be attached with equal facility to any sewing-machine. When desired, a treadle can be attached to the accelerated motor, enabling the operator to use either the treadle or the crank at pleasure."

THE INTERNATIONAL EXHIBITION.—This opened on May 1st, at South Kensington, in two buildings connected with the Royal Albert Hall by means of the Horticultural Society's Conservatory. The Exhibition is the first of an intended annual series. We copy the following remarks upon the plan from the *London Engineering* for the previous week:—"As we have said, the scheme of the Exhibition is a very commendable one; it is restricted to two or three classes of objects, and will be repeated every year. The classes of exhibits will be varied from year to year, until each class has been represented, which, according to the present programme, will be in seven years. At the end of that time the classes of objects exhibited this year will be repeated, and means will thus be afforded of judging correctly of the advance made in any special department of art or manufacture during seven years. The fine art division, however, is not subject to the same rule, but will be fully represented every year. The articles exhibited have to undergo selection by competent committees; this selection implies merit, and no prizes will be given by the Commissioners, the certificate of admission being the only recognition. But although the Commissioners do not award prizes to exhibitors, they afford every facility to individuals or societies desiring to do so for the encouragement of art or industry. The classes to which the Exhibition for the present year will be confined are mainly three, the fine arts, pottery, and woolen and worsted fabrics; the machinery exhibited relates to each of the two latter classes only. There are also educational appliances and instruments, scientific inventions and new discoveries, and horticulture."

BENDING DISCS OF SILVERED GLASS.—Mr. Nasmyth's plan for making concave glass reflectors for telescopic purposes, is as follows:—"A disc of silvered plate glass, 39 inches in diameter and 3-16 of an inch in thickness, is fitted and cemented into a shallow cast-iron dish, turned true on its face so as to render the chamber behind the glass perfectly air tight; by means of a tube communicating with this chamber, any portion of air can be withdrawn or injected. To produce a concave mirror so slight power is required, that on applying the mouth to the tube and exhaling the chamber, the weight of the atmosphere, which amounts in this case to 3558 lbs., acting with equal pressure over a surface of 1186 square inches, causes the glass to assume a concavity of nearly three quarters of an inch, which in a diameter of 39 inches, is far beyond what would ever be required for telescopic purposes. On re-admitting the air, the glass immediately recovers its plane surface, and on forcing in air with the power of the lungs, it assumes a degree of convexity nearly equal to its former concavity. The degree of concavity or convexity may be regulated to the greatest nicety, and it is proposed to render the degree of concavity constant by placing in the air-tight chamber a disc of iron turned to the required form, and allowing the pressure of the atmosphere to retain the glass in the form given to it by its close contact with the iron disc."

NEEDLES.—The agents of the two leading makers in Boston, report the aggregate sold in Boston, New York, and Philadelphia, as about one hundred and sixty million of needles per month, running from 75 cents to \$2 per thousand. The sales chiefly are on the numbers from 5 to 10, while seven-eighths of these orders take the numbers of 7 and 8. Knitting and darning needles, that 25 years ago were sold in amount over double the sales of sewing needles, have dwindled to a very insignificant item of stock. They can hardly be said to sell now at one-twentieth of their former amounts. Crochet needles have a very large sale, and have taken the place made vacant in stocks by the disuse of the darning and knitting needles.—*Sci. Am.*

SCIENTIFIC PROGRESS.

SCIENCE OF COLOR AND MENTAL SCIENCE.

In a late lecture before the Royal Institution, Prof. J. Clerk Maxwell illustrated Young's doctrine of color vision, and remarked that it was the first consistent theory of color. The elementary truth recognized thereby is that the difference in colors must be sought not in the nature of light but in the constitution of man. The explanation is therefore not to be reached by the study of pigments nor in the analysis of the rays of light. We quote a paragraph or two from Prof. Maxwell's lecture:—"I have here a picture of the structure upon which the light falls at the back of the eye. There is a minute structure of bodies like rods and cones or pegs, and it is conceivable that the mode in which we become aware of the shapes of things is by a consciousness which differs according to the particular rods on the ends of which the light falls, just as the pattern on the web formed by a Jacquard loom depends on the mode in which the perforated cards act on the system of movable rods in that machine. In the eye we have on the one hand light falling on this wonderful structure, and on the other hand we have the sensation of sight. We cannot compare these two things; they belong to opposite categories. The whole of metaphysics lies like a great gulf between them. It is possible that discoveries in physiology may be made by tracing the course of the nervous disturbance 'up the fine fibers to the sentient brain;' but this would make us no wiser than we are about those color sensations which we can only know by feeling them ourselves. Still, though it is impossible to become acquainted with a sensation by the anatomical study of the organ with which it is connected, we may make use of the sensation as a means of investigating the anatomical structure. A remarkable instance of this is the deduction of Helmholtz's theory of the structure of the retina from that of Young with respect to the sensation of color. Young asserts that there are three elementary sensations of color; Helmholtz asserts that there are three systems of nerves in the retina, each of which has for its function, when acted on by light or any other disturbing agent, to excite in us one of these three sensations. No anatomist has hitherto been able to distinguish these three systems of nerves by microscopic observation. But it is admitted in physiology that the only way in which the sensation excited by a particular nerve can vary is by degrees of intensity. The intensity of the sensation may vary from the faintest impression up to an insupportable pain; but whatever be the exciting cause, the sensation will be the same when it reaches the same intensity. If this doctrine of the function of a nerve be admitted, it is legitimate to reason from the fact that color may vary in three different ways, to the inference that these three modes of variation arise from the independent action of three different nerves or sets of nerves."

A THEORY OF A NERVOUS ATMOSPHERE.

Nature for May 11th notes a new theory suggested by Dr. Richardson, and remarks that it is calculated to give rise to much discussion. We quote briefly, condensing:—"The theory is in some sense a return to the old view respecting nervous action [fluid hypothesis], and in some sense also is an extension to the nervous system of the physical idea of communication of motion by molecular disturbance. In a few words, the author supposes that the blood, as it circulates through the vessels, yields a diffusible vapor or atmosphere which charges the nervous system, surrounding the molecules of nervous matter and pervading the whole nervous organism. He attempts to formulate the physical qualities of this vapor; it is probably an organic vapor containing carbon, hydrogen, and nitrogen; it is insoluble in blood, it is condensible by cold, diffusible by heat; it possesses conducting power, as a physical substance is susceptible of variations of pressure; it connects the nervous system in all its parts together; it is the medium of communication during life between the outer and the inner existence; by the organs of the senses the impressions and motions derived from the outer world are vibrated into or through the nervous atmosphere to the brain; in the living and healthy animal the nervous ether, if we may so designate it, is in correct tension, in the feeble it is diminished, in the dead it is absent or inactive; in the waking times of the living it is most active; it may be used up faster than it is produced during exercise; it is

renewed during sleep. On the supposition of the existence of a nervous ether or atmosphere, the author accounts for various phenomena. It is assumed that vapors of chloroform or alcohol, for example, taken into the blood and carried to the nervous system, become diffused through the nervous atmosphere. "The foreign vapor that has been introduced henumbs; in other words, it interferes with the physical conduction of impressions through what should be the cloudless atmosphere between the outer and the inner existence." The rapid action of certain poisons, and the diffusion of the products of decomposition generated within the body itself, in disease, and the sudden collapse of nervous action which is often seen, are similarly accounted for by the author of the theory."

THE PROVISIONAL HYPOTHESIS OF PAN-GENESIS.

—This, so called by Darwin, is getting raps from the scientists on all sides. Upon the point that the reproductive gemmules are diffused or suspended in the fluids which circulate freely through all the tissues, Dr. Lionel S. Beale ironically remarks in *Nature* for May 11th:—"Depend upon it, neither the well-devised experiments of Mr. Galton, nor any other experiments that may be devised, will overthrow this doctrine. The provisional hypothesis of pan-genesis is perfectly safe, and will withstand every attack that may be made. It cannot be successfully assailed. Like many favored hypotheses of these days, it can neither be proved to be true nor positively shown to be false, and it is open to anyone to ground his belief in the truth of this and other doctrines upon the fact that they have not been and cannot be disproved. For undoubtedly gemmules may be formed in the manner supposed; if formed, they may be detached; if detached, they may pass through the tissues; they may then collect together, and may form reproductive elements. Each one of the countless millions of sperm elements produced in each profusion during so many years of life may, indeed, be formed by the union of millions of gemmules which, after meandering through the various textures of the body, marshal themselves in order in one particular locality. From the vast company thus supposed to have collected, we may conceive, by the light of imagination, the formation of regiments composed of multitudes of individual gemmules of the same kind; and further, it is not difficult to imagine that each individual gemmule of every regiment may move away and unite with thousands and tens of thousands of others, to form at length that marvellous compound and complex speck of matter less than the 1-50,000 of an inch in diameter, which constitutes the active material of each small reproductive particle. * * We may be led from the consideration of the broad facts of nature to conceptions of the most abstract kind, without being conscious of the slightest gap between the facts of Science and the creations of the Imagination. In these days the utmost skill is often displayed in hiding and ignoring or denying the hiatus by which the arguments deduced from the results of observation and experiment are separated from those which are based upon the fictions of the fancy. But, unhappily, the gulf cannot be filled up, or bridged over. It may be obscured by mists and clouds, but, though it be lost for a time, it is sure to be rediscovered and its limits studied by the curious and unphilosophical. Nowadays analogical argument is employed very freely without any attempt to show, in the first place, that there is any real analogy between the facts upon which the reasoning is based. In order to convince people that a hypothetical gemmule may move long distances through all sorts of tissues, it is only necessary to show that actual matter, millions of times as large, does burrow a short distance through certain textures. * * The pangenetic gemmule cannot be seen or tested, neither can its presence or absence be proved in any way. The phenomena adduced by Mr. Darwin in support of his hypothesis can be demonstrated; but the pangenetic gemmules are of the imagination alone, and the analogy between the actual facts and the supposed facts is purely but an analogy of the imagination."

MOLECULE—ULTIMATE—ATOM.—In a late number of the *Quarterly Journal of Science*, Mr. Mungo Ponton in his short paper on Molecules, Ultimates, Atoms, and Waves, suggests the use of the term "molecule" to denote the particles of chemical compounds; "ultimate," those of chemical elements; and "atom," the assumed constituents of those ultimates, themselves incapable of further analysis.

CORRESPONDENCE.

Wastage of the Precious Metals—No. 2.

BY ALMAHIN B. PAUL.

[Written for the Press.]

From data of loss, given in my last article, we must come to the conclusion that gold mining, not only in California, but elsewhere on the Pacific slope, as all are operating on about the same system, is unquestionably behind all other branches of industry in perfectness, and certainly not up to the point it should be. In fact, so imperfect is it, that our gold mining enterprises, as a whole, may be set down as a failure, when the question of profit in all is considered. If it can be considered highly successful in this general sense, ought we not now to be teeming with prosperity?

That some change should be brought about, must be evident to all. What that change will be or should be, each must determine for himself. In order to better the interest, all operators should give their attention to increasing the percentage of yield without a corresponding increase of expenditure. There is a benefit, however, in producing more even with an equal expenditure, as it gives an additional amount of metal for circulation, and requires an equivalent of labor. But this idea, although correct, is an unpopular one; it doesn't belong to the selfish spirit of the age, for without a profit on labor, it is not wanted. This age is for profit, not good unless the "good" makes the profit.

One step in advance would be,—taking more care. There is too much slashing about in our gold mining. There is enough in silver, but no comparison between the working of the two metals. This plan of seeing how much can be pounded up and rushed through every 24 hours, is a false, wasteful and ruinous system.

The profit will be found in *how well* and how cheap it can be done. It is in the right direction certainly to reduce ores expeditiously and cheaply, but not to as expeditiously wash everything away, having an eye more to pounding up the rock, than to taking up the metal. The following slip, clipped from the Press, to my mind, tells quite a long story in itself: "Here is a 40-stamp mill, that pulverizes its 250 tons weekly, employing 40 to 100 men. The ledge averages five feet thick. The Montezuma, too, is located here; but for reasons best known to the company, they have permitted their 20 stamps and good mine to remain idle for the last two years."

Forty to a hundred men getting a mine, to run how much down stream? I know several similar institutions which work from "40 to 100 men," and at the end of the month the owners do not have one dollar for themselves; whereas less expense, less rush, and more metal saved, could turn the scale often from loss to profit, and "20-stamp mills with good mines" need not be idle. I contend that ore can be reduced, held under control for manipulation, and metal amalgamated as cheaply as this uncontrollable sluicing system so universal in California.

That our gold ores are so readily amalgamated, is one of the ruinous ideas extant. The majority of California miners are, in fact, but little experienced in all the troublesome accompaniments of even gold ores, considering that if the rock does not pay, that it cannot certainly contain it. All, however, admit it to be difficult to extract the gold from iron sulphurets, forgetting that even a small percentage of lead, copper, arsenic or antimony which is to be found in nearly all the gold ores of California, vitiates the mercury in a little while, rendering it quite inefficient in collecting even the gold that otherwise from gravity might be taken up. We hear great accounts of the value of the ores in San Diego Co.; but do they prove up their assertions by the product per ton? One of your correspondents, only a week or so ago, stated in his communications that 'we must have improved machinery or abandon this in use.' He had been investigating the matter. It is too universal to consider that it is only necessary to rig up a set of stamps, apply the power, and let them rip away smashing rocks, to wash over blankets and copper plates; and all is done with a stream of water to wash the sands off, forgetting that it is equally as patent to wash off the smaller particles of gold.

We boast of our mechanical and scientific skill, our 22 years experience, our great discernment and independent action, and yet are bowed down to our grandfathers' ideas of working gold ores, and, on the average, do not extract 50 per cent. of the riches contained therein. Is there not a contradiction in our boasts, when compared with results?

Some will say, it is all well to talk about loss of metal, but how can we prove it, and where is the remedy?

I will tell you how to prove it, but each must work out his own remedy. For my part, I have worked out the loss by what I consider the remedy—dry amalgamation—but our subject now is loss, not remedy. To awaken the mind for improvements, and be interested in a remedy, miners must first realize their loss. I contend there are several ways of working our gold ores better than the one now universally used in California. If you want to get a clear comprehension of your loss, take say 5 tons or more—not less. Reduce the ore dry through say No. 20 wire cloth screens; mix all thoroughly, then spread it out upon a floor about two inches thick. Lay it out in 12-inch squares, take a smaller quantity from each square, take samples thus obtained, and again mix them. Again spread out say one inch thick, laid out into 4-inch squares, taking a smaller portion from each. Reduce this sample to powder; if too much for average assays, sample again as before. Got 3 or 5 assays from reliable assayers, average the assays. Work your ore by your mill process; compare the results with assays; and in nine cases out of ten every one will find they possess more riches than they thought they had. Any other system of testing is unreliable. Pieces of rock can be had to assay more or less as you want. To get at the value of your mine, the testing of tons by this mode is the only safe one. It is troublesome, and these "old time" gold miners, who have got it all, don't want to be troubled. The less bigoted ones, however, may find time and take an interest in doing so, and receive, I doubt not, a pleasurable lesson. As I happen to be in the unfortunate position of trying to benefit the pursuit in which I take the most interest studying, I will receive it as a favor, if parties who should make any tests as the value of their ores, in connection with the loss, will send me the results of any experiments. I said "unfortunate position," as I clearly realize the fact that it is unfortunate for any one in California to start out of the old beaten track, or to show the least enterprise, outside of "interest;" for by so doing he too often becomes the pay of those—

"Whose hungry maws are only bent
On the fine feast of cent. per cent."

Kearsarge Mine, Inyo County.

EDS. PRESS:—I took a trip up to the famous Kearsarge works, the other day, to see the improvements at that point. Through the kindness of Gen. J. B. Winters, one of the chief owners and the present Superintendent, I gleaned the following:

Tramway—MILL.

A tramway, 1,500 feet in length, has been built down the mountain side, at an incline of 38°, to a point about 500 yards from the mill, for the purpose of delivering the ore. Thence it is loaded in wagons and hauled and dumped into the battery room. The estimated cost of delivery from the mine to the mill is 50 cents per ton. Formerly it cost \$15 per ton to get the ore to the same place.

The tramway is a double rail with a switch in the center of its length for one car to pass the other; the cars are built on a new plan, (new to me, at least) having the outside wheels of each car with double flanges, which enables them to take the switch with an accuracy which seems wonderful when seen approaching at such a speedy rate as they generally travel down the mountain. The engineer, Mr. Thompson, of Virginia City, has added another feather to his cap, by the successful manner in which he has been able to accomplish this work. The mill has, under his management, been also changed from a steam mill into a water power, by the means of a "Leffel turbine" of 13 inches in diameter, with a large water pipe leading down the mountain, from a water ditch leading from the cañon. The water has 120 feet fall, and strikes the wheel with a force of 9 tons, and with a one-sixth inch opening will drive the wheel at the rate of 2,000 revolutions per minute. While I was present the water was turned on with the result as above stated. All the machinery of the mill has been thoroughly overhauled by competent mechanics, and is now ready

to start up. The mines are being worked, and excellent rock was being delivered in the dump house before I left.

The Mines.

This cluster of mines has always been considered to be among the best in our county,—but heretofore work has been done at such a disadvantage that it has taken ore of almost fabulous richness to pay the expense of working. It is now the intention to work all the quartz contained between the walls (making a body of an average thickness of four feet), the lowest assays of which are \$27.50 per ton, and Mr. Winter assures me that he can mine and reduce rock with his present facilities for \$9 per ton, or at a cost of ¼ of the lowest assay of his ore. On the other hand there is a vast amount of rock in the mines that assays from \$100 to \$2,000 per ton.

Some \$40,000 have been expended on the above improvements since the 1st of April, and considering the inaccessibility of the locality and the immense amount of labor performed, it seems almost an impossibility that it should have been completed in such a short space of time. I have a statement from the very best of authority that there is now at least one and a half millions of dollars worth of ore in sight and ready for extraction.

Possible Sale.

A few weeks ago, a party of mining experts and engineers paid a visit to this mining property, in behalf of an English company, with the view of negotiating the purchase of the same. The owners put a price upon the property, but stated at the same time that the work would progress without reference to the likelihood of a sale being made, as they were perfectly satisfied with their prospects of a fortune.

If this company should conclude to purchase the Kearsarge property, it is the intention of Mr. Van Gorder and Gen. Winters to invest in other mining enterprises in this county. So, rather than otherwise, I should like to see the sale made.

I will give you the results of this company from time to time as I receive them, as I think upon it depends, in a great measure, the prospects of Inyo County.

CROWQUILL.

Independence, Inyo Co., May 22d.

The Siege of Paris—Dynamite.

[Condensed from London Engineering.]

During the seven months of the siege of Paris, the industrial arts and sciences lent their earnest co-operation to the long sustained work of the defence; and a vast number of problems were presented, for which solutions more or less successful had to be discovered.

What had to be Done at the Siege.

It was necessary to cast heavy ordnance, to make mitrailleuses, to build gun carriages and ammunition wagons, to obtain vast supplies of projectiles, to convert old-fashioned muskets and rifles into efficient pieces, to turn out powder and cartridges, and to prepare formidable explosives. Turning to other equal or even greater necessities, there had to be erected hundreds of mills to convert into flour the immense stock of cereals stored up in the city, and to build or adapt establishments for the salting, or preserving in other fashions, the flesh of thousands of oxen and horses, to boil down their fat, or produce concentrated soups. Again, the civil uses of electricity being held in suspension, it found a thousand uses for military purposes, for the transmission of orders, for the working of the torpedo service, for the electric light which played so conspicuous a part during the siege; the post-office pressed all aerostats into its service, and requisitioned many photographers; substitutes had to be found for gas and for coal. Such an enumeration might be extended indefinitely, but these few examples must suffice to give an idea of the manifold requirements.

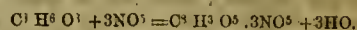
There were two great and distinctive characteristics which gave to all these problems a special and peculiar interest. First, the rapidity with which it was necessary to arrive at the desired end; second, the constant absence of the ordinary elements of success necessary under usual circumstances. Often there were lacking the prime materials, nay, the very tools. We propose to dwell on some of the improvised industries prosecuted during the investment, and in the present article shall speak of the manufacture and employment of dynamite.

Manufacture of Dynamite.

A commission of experts, under the

control of the Minister of Public Education, was appointed for this, and two manufacturing were established. The glycerine was requisitioned from candle factories and the necessary acids were obtained in abundance. More difficulty was experienced in getting the absorbent body, it being of course impossible to obtain the silicious earth from Gormay which Nohle employs. After a variety of things had been tried in vain, the ashes, properly cleaned and sifted, of Scotch boghead, largely used in Paris in the manufacture of a portable illuminating gas, were employed. These absorb twice their weight of nitro-glycerine, without losing their granular appearance or becoming plastic.

The glycerine is treated with nitric acid, forming nitro-glycerine and water.



In order to remove the water, which is separated as soon as produced, concentrated sulphuric acid was used, in such manner that practically the glycerine was treated by a mixture of both acids. The mixture was placed in capsules of enamelled iron, arranged in vats filled with cold water. The glycerine was discharged into this, in a thin stream, from flasks shoving the vats.

The combination of the glycerine with the acids disengages a vast quantity of heat, which must be absorbed to keep down the temperature and thus prevent the nitro-glycerine from being destroyed and causing an explosion. For this end, electric thermometers of an extremely ingenious arrangement were employed to denote when a temperature of 20° Centigrade was reached. To reduce this temperature, the flow of glycerine was checked, or the water in the vats was changed or cooled with ice, or, in case of contingency, the capsules, arranged for this event, were emptied into the vats. It was necessary to keep the mixture of glycerine and acids constantly agitated, and this was done either by rotating stirrers driven by clockwork, or by an air blast.

When the reaction came to an end, the contents of the capsules were turned into the water, and the nitro-glycerine collected at the bottom and decanted. Afterwards it was washed thoroughly with an alkaline lye, until test paper gave no indication of acid. This was a vital point, for the nitro-glycerine acid explodes spontaneously. The oil and the absorbent powder were then mixed on a lead plate with a glass trowel until homogeneous and, as dynsinite, packed in zinc cans.

The Uses of Dynamite.

The dynamite was then put into the hands of engineers and experimented with for its military applications. Special means were necessary to cause its explosion. Fire burns it without violence, concussion does not effect it, and there is scarcely any means of exploding it except with a strong cap heavily charged with fulminate. The cap can be exploded with an electric spark, or with a fuse, or by means of a priming. But it is absolutely necessary to keep the sparks from the fuse from contact with the dynamite, else this merely burns without exploding.

Experiments were made in charging shells, which can be fired from the gun in the usual manner without exploding. A much smaller charge than that of powder suffices. But this application was not followed up.

Trials were made in destroying cannon. A bag of dynamite placed within the muzzle of a gun breaks it. A number of dynamite zinc cartridges were prepared for the German guns, but the opportunity of using them never presented itself.

It was found useful in quickly preparing barricades for road obstruction, for protecting a retreat or for guarding a position. A linen bag holding 7 to 9 pounds wrapped around a tree of 5 feet girth, on explosion, brought it to the ground, now cut off short and clear at the point of explosion, now torn into long jagged splinters.

The explosion of 6.6 pounds simply placed on a 2-inch rolled iron armor plate, broke the plate in exploding, and made a large hole in the ground. For effecting breaches, blowing down gates, destroying stone walls, etc., it only required to explode the dynamite on the surface of the obstruction. It was often used thus, and was also employed effectively in breaking up the thick ice on the Seine, when the gunboats were frozen up. It was used, after the siege, for removing heavy masses of masonry and iron work, which would otherwise have required powerful cranes and other mechanical appliances which were not readily available. Another application was for wholesale fishing.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, May 27th: Freight to the amount of twenty-seven thousand pounds was hauled in this week for the Monitor & N. W. Mill. Next trip as much more machinery for the same mill will come up. These teams load back with ore from the Leviathan, for Dayton.... In the Exchequer, a cut westerly to the hanging wall developed last week a small vein of quartz, bearing sulphurets, which assays over two thousand dollars per ton in gold. The extent is not determined.... This afternoon, the director of the M. & N. W. Mill will make a "hee" to raise the sixth story.

AMADOR COUNTY.

SUTTER CREEK.—*MINER'S STRIKE*.—On the morning of June 1st the "Miners' League" made a strike for higher wages, and, marching in procession, closed the Keystone, Little Amador, Hayward's, Poundstone's, Downs, Mahoney's, and California mines. They then passed to the Amador mill and took possession. But the officers of the Co. had made a clean-up and had their bullion safe. They then proceeded to the Amador mine. The President having arrived from San Francisco met them in company with Superintendent Stienberger, and after listening to their demands, told them the Co. was paying to-day the wages they did pay twelve years ago; would make no concessions; while they owned the mine they would run it to suit themselves. The mob after taking all the men out of the mine, went to the Oneida and did the same. The officers of the Amador Co. have resolved to defend their property at any cost.

The *Ledger* of June 3d truly remarks: "Strikes of this character seldom result in good, and as a general thing those engaged in them are the sufferers in the end."

FINE VEIN.—The Kennedy Co. have a vein of ore in the bottom of their shaft five feet wide, of very rich quality.

CALAVERAS COUNTY.

MORE DUST FROM RAILROAD FLAT.—*Chronicle*, June 3d: On Saturday Swank Brothers, of Railroad Flat, brought to town the proceeds of forty tons of rock from their mine. The quartz paid \$36 per ton, the whole aggregating \$1,440. The Swank mine is on the Poe lead. The shaft is not over 40 feet in depth.

ITEMS.—Paul & Co., near the Junction, are still taking out fair gravel. A large force is employed.... But little is doing at the Junction. Whittridge's mine is being worked but not steadily: The outlay of a small amount of capital would develop it into one of the best claims on the ridge.... In Chili Gulch, Shaw, Brackett, Calaveras Tunnel Co., and French Co., are at work. Shaw and Brackett are doing well, we know nothing in reference to the others.... Bates & Co., in Stockton ridge, continue to receive large returns. There is no question but that their claim includes 200 feet of the famous Stockton Hill lead.... The machinery on the What Cheer will be in readiness to start next week. Wells and Gleason are pushing things.... The Union Shaft boys, in Corral Flat, are taking out gravel that prospects well. They have not washed up since sinking their present shaft. They find the old diggings badly caved, and are running across the lead to reach new ground.... On the west side of Stockton ridge Megaw & Co. are still at work. The lead appears to elude their search, however.... At Sport Hill, Mosher & Co., Johnson & Co., Collins and others are washing away with vigor and fair results.

SAN ANDREAS.—Cor. of same: There can be no question now as to the richness or extent of the ledge on which Mr. Thorn has located. The gold is fine, and thoroughly diffused throughout the rock. From all the bearings, his claim must be on the belt of the celebrated Hayward mine in Amador. His shaft is now over 160 feet in depth; the vein has widened gradually to five feet. Two feet of "gouge" upon the hanging wall has been perforated and another vein revealed. The thickness is not yet known. Excellent buildings have been erected over the works, and all the appliances are first-class.

INYO COUNTY.

INDEPENDENCE.—Cor. of Sonora Democrat, June 3d: The Cerro Gordo mines and furnaces, ship from 10 to 12,000 pounds of bullion per month. The Front mine at Cerro Gordo is estimated as worth \$1,000,000. The Eclipse mine belongs to an En-

glish company. This Co. has several other mines of importance and has set apart \$500,000 of their capital to carry out this speculation in Owen's River Valley. Their mill is situated on the East bank of Owen's river twelve miles south of Independence. The company purchased the mine a year ago for \$150,000. The Kearsarge, in the Sierra Nevada, is principally owned in Virginia City and Gold Hill. It is not as rich as the Eclipse, although a valuable mine.

NEVADA COUNTY.

TOWN TALK MINE.—*Grass Valley Union*, May 31st: We saw yesterday a lot of retorted gold, worth about \$5,000, the proceeds of a month's run of the Town Talk gravel mine. The eight stamps are driven by waterpower, and all the gravel taken out is put through. The profits of the run for this month are over \$2,500. There are only three owners.

GEN. GRANT MINE.—The Co. have had a crushing at Perrin's mill and Saturday a clean up was made. The number of tons crushed was ten, and the yield \$518.50, or \$51.80 to the ton.

GRANTVILLE.—Cor. of *Gazette*: Mining operations continue active. The Erie has not changed hands yet; the rock looks rich, and there is plenty of it. The mill is kept constantly employed. The Black & Irvin mine is going to pay a handsome dividend the coming clean up. It is reported that they have struck the ledge in the big tunnel at Rocky Glen, formerly owned by D. W. Snapp, the rock shows free gold, and the vein is three feet in width. Mr. Mowrey expects to strike his ledge in the tunnel next week. The Star lately crushed some rock which paid \$16 per ton. The Mary Emma mine, in "God's Country," owned by Caddy, Down & Co., is looking fine. The ledge is over four feet wide. They have a six stamp water mill. The gravel miners are busy.

BRUSH CREEK.—*Transcript*, May 31st: The miners are busy, and more gold will be taken out than last year. John Hall, on lower Brush creek, is working ten men, and Calkins & Townsend, above, forty. On Myer's Ravine, Calkins & Bro. are working six men. Howe at Shelby Hill is using a large amount of water and running at night. COLUMBIA HILL.—Woods & Co., and Nichols & Co. are at work. The latter claim has been fitted up with iron pipe and a large size Monitor nozzle.

A STRIKE IN THE ROAD.—Same of June 3d: On Wednesday Wm. Michels and another man made one of the richest discoveries ever made in this State, on the Washington road, five miles from this city, at a point where several old roads come together. The parties walking along the road found a lump worth eight dollars. On Thursday they went up and panned out \$84. Yesterday's stage stopped on the down trip and the 11 passengers picked up \$10 to \$12 in an hour. The surface prospects from \$10 to \$12 to the pan, in coarse gold.

The *Gazette* of the same date says that the two men have panned out about \$800 since the morning before.

The *Transcript* of the next day recalls the fact of the loss, in 1861, of a purse containing nine hundred dollars, by the stage owner on that road; and suggests that the purse, hidden by the dust, may have been broken open by passing teams, and the gold gradually scattered over the eighty feet or so of level ground where it was found.

BLUE TENT.—The miners are at work with good prospects. The Enterprise Co. is running 400 inches of water, the Last Chance Co. has purchased the Swallow Flat claims, and are cleaning up. The mines at Gopher Point show fair prospects.

[Owing to a mistake, the mining summary of the remaining counties will have to be deferred until next week.—Ed.]

Nevada.

ELY DISTRICT.

REVIEW.—*Record*, May 28th: All the mines in the District are looking well. Thousands of tons of fine milling ore are on the dumps awaiting an opportunity to be worked, and crushing power is all that is needed to enable us to treble our present hullion shipment. Custom mills are the present great want of the District. The mill at Silver Park, owned by Sam Ferguson and H. C. Chandler, is kept running on custom ore from this District and much is sacked and sent to other camps.

ITEMS.—Pioche mine is working 43 men and shipping 20 tons per day to the Chicago mill, in Meadow Valley. The machinery for the Stetefeldt furnace, is on the way from San Francisco.... Bovey incline is down 105 feet and the perpendicular shaft 85 feet. The ore will compare favorably with any in the District, as the average assays are \$400 per ton, and it is scarcely possible to pick up a piece from the dump

in which horn silver is not to be seen. The ledge is twenty inches to four feet in width. They have five hundred tons on the dump.... Barton is down 115 feet. About 60 tons of good ore on dump....

Alps ore averages \$250 to \$400 per ton, with 60 tons on dump. An offer of \$25,000 was recently refused for this mine.... Pacific Tunnel No. 2 is in 175 feet, and a ledge has just been struck. The indications are excellent.... Meadow Valley has two hundred men employed. About 60 tons of ore shipped per day to the mill in Dry Valley, which is running 30 stamps night and day.... Raymond & Ely Co., send 35 tons daily to the mill at Meadow Valley. The receipts of bullion are increasing every week....

Meadow Valley Extension have a fine whim and house complete; the shaft is down 240 feet and will be sunk ten feet more before opening the fourth level, having already cut into the ledge in three places, in all of which the ledge looks well. The ledge has been for the last 15 feet in the shaft, and is three and a half feet wide.... Superior shaft 70 feet deep with a ledge of 18 inches. Assays recently have reached as high as \$1,160, but average \$100 per ton.... Silver Peak is 150 feet deep and still sinking, with plenty of fine ore in sight.... Bradley shaft is down 25 feet, and rock assays \$140 to \$260.... Vermillion shaft is down 120 feet and plenty of good ore in sight.... Creole and Washington still idle owing to injunction.... American Flag shaft down 90 feet; taking out rich ore.... Richmond about 85 feet down; large quantities of pay rock taken.

BULLION.—Same of June 1st: Wells, Fargo & Co., shipped, May 26th and 28th, by way of Salt Lake, bullion \$17,357.10.

Pioche agent of W. F. Co., informs H. S. King that the amount bullion shipped from that office for the year ending May 1st is \$1,862,544.

ESMERALDA.

MILL BURNED.—*Carson Register*, May 31st: We learn that the Kean mill, at Pine Grove, which has recently come into possession of ex-Governor Blasdel and Mr. Williams, was burned down on Sunday morning last. Active preparations were being made by the new proprietors to start up the mill and mine with a full force. Later accounts state that the excitement of the people is great, and that it is not unlikely to find vent in the hanging of James Rhodes, the arrested party.

EUREKA DISTRICT.

PHENIX SMELTING WORKS.—*Sentinel*, May 31st: The buildings are being increased, and arrangements making to get the ore down in sufficient quantity to run during bad weather without stopping. They are working about 50 men, and their prospects have never been better.

STRIKE.—On Saturday a fine prospect was discovered by Capt. Maxwell in the foothills. He brought into town some pieces, a sample of which assayed, \$1,100. The discoverer is the sole owner.

JACKSON FURNACE.—This has been running for some time with the best success. John Williams will soon have booth furnaces running, and we shall then look for an old time yield.

BUTTERCUP CO.—Same of June 1st: Col. Robbins, Supt., will at once proceed to explore thoroughly several of the Co.'s mines.

RICHMOND.—Same of 3d: A new body of ore, cut in the deepest workings a few days since, has been drifted upon until it has proved to be one of the largest bodies of carbonate ore in the district. The lowest assay has been \$67.83 to the ton. The success of this company is great, and the dividends as large as any in the State.

OTHO MINE.—Same of 4th: This is 2,000 feet east of the Bullwhacker, which was sold the other day for \$75,000. Sixty days ago, Messrs. Strout and McGee bought two-thirds of it for \$2,000, and commenced sinking. The main shaft is now 110 feet deep, and they are taking out five tons of ore daily, which is sold on the dump for \$25 to \$40 per ton. They have 2,000 tons in sight, and it costs \$5 per ton to lay it on the dump.

HUMBOLDT.

SHEBA MINE, STAR DISTRICT.—*Silver State*, June 3d: Work is pushed, and the ledge continues to show ore of high grade. It is now sufficiently developed to prove, beyond a doubt, that the old Sheba is a permanent mine.

ECLIPSE MINE.—Work is going forward in the tunnel. They are now in 150 feet, making 10 feet a week.

BULLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$5,631.

REESE RIVER.

ORE FROM MONTEZUMA.—*Reveille*, May

31st: Two tons from the Henry mine, just worked at the Manhattan mill, yielded \$505 per ton. Two lots of half a ton each from the Lee Hope and White Fawn mines, also worked at the Manhattan, yielded, the former \$458.55 per ton, and the latter \$289.04.

SALE AT BELMONT.—Wm. Flagelex, one of the owners of the Monitor, which worked \$700 per ton, has bought 700 feet from two of his partners for \$15,000 cash.

WASHOE.

DANEY MILL.—*Gold Hill News*, June 1st: We learn that the water is now all out of the old works, and the drift south is progressing at a satisfactory rate. The average assay of the ore is a little over \$22 per ton, \$20 of which is gold—the balance silver.

STARTED UP.—The Rhode Island mill, after undergoing a thorough overhauling of its machinery, pans, etc., started into full operation once more this afternoon on ore from the Crown Point mine. The mill works splendidly.

OPHIR.—Same of 5th: The Co. last week cleared out the bottom of their new shaft, and commenced sinking deeper to prospect.

VIRGINIA CONSOLIDATED.—This Co. have drifted to within a little over a hundred feet of their north line, and the rock being softer, better progress is made. Their new south drift is now in sixty feet toward the Gould & Curry, and is driven at the rate of five feet a day. Promising quartz is encountered.

GOULD & CURRY.—*Enterprise*, June 1st: Good progress is made in the preparations for the further sinking of the main shaft. The arrangements for pumping the large volume of water anticipated are on a scale of great magnitude. The new wire rope is in place. This cable is five inches in width and half an inch in thickness; it is 1,600 feet in length, and weighs over three tons.

LADY BRYAN BULLION.—Same of 2d: We yesterday saw a lot of crude bullion from the Lady Bryan mine, which weighed 2,267 ounces—the product of the first run of the mill for rather less than 11 days.

WHITE PINE.

REVIEW.—*News*, June 3d: We went through the Original Hidden Treasure, yesterday, and were astonished at the amount of ore in sight. It is still a marvelously rich mine. Capt. Turner, Supt., has engaged the Swansea mill, and will commence shipping ore on the 10th. In the South Aurora there is the usual amount of ore in sight, but the Stanford mill, which has made so successful a run, will shortly shut down to make repairs. Ward Beecher proper stands about the same as in our last. Ward Beecher Consolidated is rapidly developing into a first-class mine. The Manhattan mill started up on tailings, but next week will be put to its full capacity on ore from the above mine. Several mines which have lain idle for some time, have started up and are shipping valuable ore. Among these we may mention Emersley, Charter Oak and Virginia; ore from the former two milling up into the thousands. The Trench mine continues to ship hase ore to the Big Smoky, which works \$300 nearly per ton; and the Republic, between Hamilton and Shermantown, had some ore worked, this week, at the Big Smoky, which went \$590.63.

WEEKLY SHIPMENT.—Wells, Fargo & Co. shipped, during the last week, from this city, bullion to the value of \$34,343.80.

Arizona.

BRADSHAW.—*Prescott Miner*, May 20th: Not a week passes that new discoveries are not made, and every foot sunk upon the Tiger, Eclipse, Cougar, Badger, Lion, Del Pasco, Hunter and other ledges, brings to view more rich ore. Scores of tents and cabins have been built, and the people number at least 300 men. One smelting furnace is in full operation, and a small mill will soon be erected.

WALKER DISTRICT.—Ten days since, Mr. Pointer brought to town \$1,400, the proceeds of 25 tons of ore just worked in an arastra. On Saturday last, C. Y. Shelton brought down \$840 in dust, and \$200 in specimens, which he had just taken from 2,500 pounds of Vernon ore. He has tunneled upon the ledge 165 feet; and has a two foot vein, in which the gold can be seen by the light of a candle. He thinks of buying the Eureka mill.

HASSAYAMPA.—Davis & Co. are working upon their lode, which is one of the largest and richest in the Territory. The vein is twelve feet thick. The croppings have been prospected for 4,000 feet, and free gold and silver found everywhere.

WICKENBURG.—Mill running and paying. Deep shaft on Vulture lode down

over 350 feet, at which depth there is abundance of rich ore.

Colorado.

The Herald of May 27th says: The Lexington mill is to be started up again next week, with the first Stephenson pan ever brought to this Territory. Messrs. Knox & Stephenson came on with the pan from the Pacific coast, and Mr. Knox intends remaining until the merits of the pan have been fairly tested on our ores.

Mr. Thomas Bates, the inventor of an improved ore reducing machine, designed for pulverizing ores on the Burr Stone principle, is building a mill in Nevada gulch, in company with his son. The burr-stones are 3 feet in diameter, and the upper stone is to make 225 revolutions per minute.

ITEMS.—Register, May 31st: Messrs. Bennett, Gray & Root have struck it on the Kansas, after a long time of discouraging toil. The crevice has "opened out wide," giving a splendid vein of rich pay rock.

TRAIL CREEK.—The Fredland lode, has been stripped on the surface for 2,000 feet. The first-class ore gives an ounce and a half gold, and 30 ounces silver per ton. There are now but two parties mining on the lode. There is piled out in all 200 tons of first-class, and about 125 tons of second-class ore. Specimens of native copper said to be from this lode are rich in gold. The ores of this lode have not been properly understood; but tests are now making, and Trail Creek may again take her place as a bullion district.

GEORGETOWN.—Miner, June 1st: The Baker M. Co. shipped last week one bar of silver bullion weighing 658 ozs., .788 fine, coin value \$670.37, obtained from ore from the Stevens mine. The Maine lode, lately discovered by Chas. Keeney, on Republican mountain, is yielding some magnificent ore. The Stewart Co. shipped last week silver bullion to the amount of \$4,332.18, coin. The work of connecting the Terrible tunnel with the shaft on the vein will soon commence. The Burleigh drill will be used. The lode where cut by the tunnel is yielding considerable ore. The Washington mill is concentrating ore from the Brown and Terrible mines, a large lot of which is on hand. Alps lode, in Cascade district, carries a pay vein of 2 1/2 feet of solid ore, which will mill 100 ounces in silver per ton.

Idaho.

ITEMS.—Avalanche, May 27th: Put Bradford's 10-stamp water mill on Sinkler creek is running on Surplus Oro Fino ore. Charley Hayer & Co. are working the Daniel Webster mine and have now 16 tons of ore ready for crushing. The shaft is down 20 feet showing a rich gold bearing vein 5 to 6 inches in width. Mickey & Co. are working the Empire, taking out good looking silver ore. Skookum boys have erected a whim and are working night and day. The shaft is down 160 feet. The ore, of which they have out 150 tons, is worked at their own astras. The McMahon Bros. have 50 tons of Red Mountain ore which will be worked immediately at the War Eagle mill. The upper shaft is down 75 feet where the ledge is two and a half feet in width. Sands & Co. have 50 tons of splendid looking ore on the dump at the Illinois Central. The shaft is down 75 feet from the bottom of which a drift has been run south 50 feet, where the vein is 20 inches wide and rich in both gold and silver. A company of tributaries have commenced work on the Poorman.

Montana.

PHILLESBURG.—Cor. of Helena Gazette, May 29th:—The St. Louis mill blew its horn this morning for the first time in several weeks, under the Professorship of Mr. J. Alger. Prof. Holland is the amalgamator. They are working ore selected by men who gathered it from the surface, and are well satisfied that it will pay them well for their summer's work after paying the mill charges. Brown, Launders & Co., on the Eastern Camanche, have run a tunnel eighty feet from discovery, and taken out several hundred tons of very rich ore.

SUMMIT.—Cor. of Montanian, May 25:—Col. Postlewaite's mill is running night and day, on "Keystone ore." About 350 tons await milling.

ARGENTA.—Work is progressing favorably on the Blue Wing, and other ledges, Bohm & Co.'s furnace is about ready to commence.

Silver Bow miners' meeting laid over all ground till next year, water being 40 cents an inch. A few of the richest companies are at work, So says the New North West of May 27th.

BLACKFOOT.—Independent, May 26th:—This place is one of the liveliest camps in Deer Lodge county. All the miners are

stuicing and have flattering prospects. Most of the companies are ground sluicing and will not clean up for several weeks. Kerr, McCoy & Co., at the mouth of Illinois gulch, have made two clean-ups this season, the aggregate result of which was \$5,000.

CABLE CITY is once more showing signs of life. The Cameron mill started up last Monday on better rock than ever.

GOON YIELD.—Mr. Porcher, of Silver Bow, informs us that Frank Gump cleaned up \$735 from four days' run, last week.

BLAKELY, BROWN & Co. have struck a bed of pay gravel on their claim at Pike's Peak, that prospects from one to fifty cents per paa. There is thirty feet of gravel that pays.

BEAUMONT.—Mel. McGee & Co. cleaned up \$2,500 last week, from their claim at the Top o' Deep.

STRUCK IT RICH.—Thos. Rutter writes from Highland that he has struck a rich quartz lode near that place, and that hands are scarce at \$5 a day.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

BELLE VIEW M. Co., Placer Co.—May 17th. Capital Stock, \$800,000 in 8,000 shares. Trustees: W. H. V. Cronise, A. C. Penchey, W. P. C. Stebbins, T. E. Baugh and J. F. Crosett.

STAR M. AND M. Co., Nevada.—May 19th. Capital Stock, \$2,500,000 in 25,000 shares. Trustees: M. J. McDonald, J. Greenbaum, F. K. Arnold, L. J. Lewis and G. Hearst.

BULLION M. AND S. Co., Nevada.—May 22d. Capital Stock, \$2,000,000 in 20,000 shares. Trustees: A. P. Hotelling, J. S. Stidger, E. D. Wheeler, A. P. Sutton and A. M. Craue.

TUOLUMNE WATER Co.—May 20th. Capital Stock, \$2,000,000 in 20,000 shares. Trustees: J. M. Thompson, W. J. Jones, M. A. Wheaton and C. Elliot.

EMMA M. Co., Utah.—June 3d. Capital Stock, \$10,000,000 in 100,000 shares. Trustees: G. S. Dodge, A. E. Head, W. M. Lent, J. D. Fry, J. B. Frisbie, S. Heydenfeldt and M. Livingston.

PACIFIC M. AND W. Co., Nevada.—June 7th. Capital Stock, \$5,000,000 in 50,000 shares. Trustees: A. Hayward, J. A. Donahoe and A. K. P. Harmon.

The following have been recorded in the Secretary of State's office, Sacramento.

OAKLAND CENTRAL R. R.—June 2d. Capital Stock, \$250,000 in 2,500 shares. Directors: W. S. Chapman, G. Hearst, J. W. Pearson, P. M. McLaren and G. C. Potter.

Meetings and Elections, Etc.

YULE GRAVEL M. Co.—Trustees: C. S. Hohbs, H. Baker, B. Dore, E. S. Smith and A. Flanders. Secretary, W. H. Watson.

MAMMOTH S. M. Co.—June 5th: Trustees, S. Linkton, W. F. King, J. Sime, G. Congdon, O. V. Sawyer, F. G. Berry and I. Livingston.

CROWN POINT M. Co.—June 5th: Trustees: J. D. Fry (President), A. Hayward, R. Sherwood, J. A. Pritchard and B. Peart. Secretary, C. E. Elliot; Superintendent, J. P. Jones.

Mining Stock Market.

[S. F. Stock and Exchange Board.]

SAN FRANCISCO, Thursday Eve., June 8.

The stock market has been rather weak during the past week. Amador has sold for \$290, \$277, \$275 and \$280. Eureka sold for \$68, \$66 and \$64.

The largest single transaction which ever occurred on this coast, it is said, took place this week after the annual meeting of the Crown Point company. The "mill" combination held 4,100 shares and A. Hayward held 6,300. There was some danger of a split between the two, but a compromise was effected, Hayward taking the 4,100 shares of the other party at \$300 per share. Such is the general account of the transaction.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week:

	June 1. Highest.	Lowest.	June 8. Adv.	Dec.
Alpha.....	31	146	121	59
Belcher.....	47	47	40	29
Chollar-Potosi.....	47	47	40	29
Crown Point.....	290	302	268	300
Eureka.....	14	14	13	5
Golden Ophir.....	43	46	43	30
Gould and Curry.....	84	86	81	85
Hale and Norcross.....	61	62	58	61
Ida Elmore.....	14	16	13	16
Imperial.....	33	37	33	41
Kentucky.....	114	120	102	105
Meadow Valley.....	19	19	18	18
Ophir.....	7	10	10	11
Orig. Hid. Trans.....	10	10	10	11
Overman.....	7	7	6	9
Savage.....	48	49	46	49
Sierra Nevada.....	17	17	17	17
Yellow Jacket.....	77	77	64	73

Latest Prices.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.....	7	8	Ida Elmore.....	40	41
Amador.....	150	153	Imperial.....	105	106
Belcher.....	52	53	Kentucky.....	105	106
Chollar-Potosi.....	50	51	Meadow Valley.....	17 1/2	18
Crown Point.....	310	315	Ophir.....	10 1/2	11
Eureka Cons.....	284	285	Overman.....	7 1/2	8 1/2
Eureka.....	13	14	Savage.....	49	46
Golden Ophir.....	84	85	Sierra Nevada.....	17	17
Gould & Curry.....	84	85	Yellow Jacket.....	73	74
Hale & Norcross.....	64	65			

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SOLENTIFIC PRESS and other San Francisco Journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT	OF SALE	DAY
Albion G. M. Co., Nev. Co., May 28, 25c. June 26—July 17	Belcher, G. H., April 14, 5c.	May 17—June 6	June 6
Cherokee Flat, Butte Co., April 15, 5c.	May 10—June 3	June 3	June 3
Cona, Virginia, Storey Co., Nev., May 6, 1c.	June 9—July 1	June 1	June 1
Gen. Lee, White Pine, April 21, 10c.	May 29—June 20	June 20	June 20
Gould & Curry, Va. City, May 18, 15c.	June 22—July 13	July 13	July 13
Hanscomb, Del Norte Co., April 28, 5c.	June 10—June 26	June 26	June 26
Imperial, G. H., May 22, 10c.	June 24—July 13	July 13	July 13
Kinsaid Pat. M. Co., Tuo. Co., April 27, 25c.	June 10—July 1	July 1	July 1
Kenosha, Va., April 13, 1c.	May 17—June 7	June 7	June 7
Kentucky, May 9, 10c.	June 12—July 1	July 1	July 1
Latawaua M. Co., White Pine, May 16, 20c.	June 22—July 11	July 11	July 11
Mahogany, Owyhee Co., 1. T., May 30, 2c.	July 1—July 17	July 17	July 17
Marcelina, Nev. June 2, 20c.	June 11—August 1	August 1	August 1
Mauntauks S. M. W. P., April 24, 5c.	June 1—June 19	June 19	June 19
Miner, Roca, Sacro County, April 25, 20c.	May 30—June 20	June 20	June 20
Meadow Valley, May 4, 35c.	June 12—July 3	July 3	July 3
Nevada L. & M. Co., May 8, 40c.	June 1—July 3	July 3	July 3
Noonday, White Pine, Nev., Apr. 10, 20c.	May 15—June 7	June 7	June 7
Ophir, Placer Co., Cal., May 30, 60c.	June 3—June 17	June 17	June 17
Overman, G. H., April 28, 5c.	June 3—June 24	June 24	June 24
Pinto M. Co., Nev., May 24, 12c.	June 26—July 17	July 17	July 17
Penix, Eureka, Nev., April 13, 26c.	May 22—June 12	June 12	June 12
Salmonder G. & M. Co., May 4, 35c.	June 12—July 10	July 10	July 10
Sierra Nevada, Va. City, April 17, 25c.	May 8—June 3	June 3	June 3
Sierra Iron Co., May 17, 60c.	June 25—July 20	July 20	July 20
Silver Sprout, Inyo Co., March 16, 25c.	May 1—June 5	June 5	June 5
Succor, G. H., May 6, 1c.	June 8—June 30	June 30	June 30
Taylor, El Dorado Co., May 27, 10c.	July 12—August 4	August 4	August 4
Taylor M. & M. Co., El Dorado, Apr. 14, 26c.	May 24—June 12	June 12	June 12
Tecumseh, Calaveras Co., April 11, 13c.	June 12—July 6	July 6	July 6
Yosemite, Lander Co., Nev., April 12, 5c.	May 22—June 19	June 19	June 19

MEETINGS TO BE HELD.

Alpha Cons.....	Annual Meeting, June 19
Hobbs & Montreal M. Co.....	Special Meeting, June 27
Brande Tunnel.....	Annual Meeting, June 6
Buckeye.....	Annual Meeting, June 6
Crown Point.....	Annual Meeting, June 6
Highland.....	Annual Meeting, June 6
Rogers S. M. Co.....	Special Meeting, June 20
Silver Sprout M. Co.....	Annual Meeting, June 27
Mammoth.....	Annual Meeting, June 6
Wheeler.....	Annual Meeting, June 6
Yosemite.....	Annual Meeting, June 6

LATEST DIVIDENDS—(Within Three Months).

Amador, 54c.	Payable May 10
Black Diamond, 5c. per ct.	Payable Mar. 6
Chollar-Potosi, 5c.	Payable June 10
Chollar-Potosi, 5c.	Payable May 20
Crown Point, 10c.	Payable June 10
Eureka, div., 2c.	Payable May 6
Eureka Cons., 75c.	Payable, April 20
Golden Ophir, div., 7c.	Payable March 10
Hale & Norcross, div., 5c.	Payable April 10
Ida Elmore, div., 1c. per cent.	Payable June 9
Natoma, div., 1c. per cent.	Payable June 9
North Star, 3c.	Payable May 10
Redington, 1 per cent.	Payable June 6
Sierra Nevada, div., 1c.	Payable Jan. 16
Yellow Jacket, 25c.	Payable Jan. 16

—Advertised in this journal

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 3, 1871.

IRON.			
Pig, Scotch, No. 1 (cash), per ton.....	\$33 00	@ 35 00	
Pig, American, No. 1 (cash).....	35 00	@ 36 00	
Pig, American, No. 2.....	33 00	@ 34 00	
Swedish, ordinary sizes.....	105 00	@ 120 00	
Common.....	72 50	@ 77 50	
Refined.....	75 00	@ 85 00	
Rods, 1 1/2 in. diam., 10 ft. long.....	82 50	@ 85 00	
Horse-shoe.....	95 00	@ —	
Hoop.....	100 00	@ 145 00	
Scrolled.....	100 00	@ 125 00	
Kalender.....	—	6 1/2 @ —	
Spring.....	—	7 1/2 @ —	
Tire.....	—	7 1/2 @ 8	
STEEL.			
Bars, best cast, warranted, 3/4 in.....	18	@ 19 1/2	
Sheet, best quality.....	16	@ —	
Sheet, second quality.....	15	@ —	
Sheet, third quality.....	12	@ —	
Saw-plates, circular.....	20	@ 30	
Double-shear.....	18	@ —	
Single-shear.....	18	@ —	
Montague & Co. (cast bars).....	15 1/2	@ —	
Machinery, round.....	11	@ 13	
German, best.....	11	@ —	
German, goat.....	10	@ —	
German, eagle.....	9	@ —	
Boiler, warranted.....	10	@ —	
Boiler, common.....	9	@ —	
Jessop & Sons', common.....	17	@ —	
Double-refined.....	26 1/2	@ —	
Stone ax shapes.....	25 1/2	@ —	
SUNDRIES.			
American Lead, 100 lbs.....	7 50	@ 8 00	
German.....	7 50	@ 8 00	
Bar.....	8 50	@ 9 00	
Pipe and Sheet.....	8 50	@ 9 00	
Muselman and American Zinc, 3/4 lb.....	12 50	@ 13 00	
Antimony.....	16	@ 17 1/2	
Spelter.....	17	@ 17 1/2	
Copper, old.....	7	@ —	

San Francisco Metal Market.

PRICES FOR INVOICES

Following prices rule from ten to fifteen per cent. higher than the following quotations:

IRON.— duty: Pig, 57 1/2 ton; Rail, 56 1/2 ton; 100 lb Bar, 10 1/2 lb; 100 lb Sheet, polished, 3 1/2 lb; 100 lb, 1 1/2 lb; 100 lb Plate, 1 1/2 lb; Pipe, 1 1/2 lb; Galvanized, 2 1/2 lb; Scotch and English Pig Iron, 3 1/2 lb; 100 lb, 3 1/2 lb; White Pig, 100 lb, 40 00; 100 lb, 40 00; Refined Bar, had assortment, 3 1/2 lb, 03 00; Refined Bar, good assortment, 3 1/2 lb, 04 00; Boiler, No. 1 to 4, 04 1/2; Plate, No. 5 to 9, 04 1/2; Sheet, No. 10 to 13, 04 1/2; Sheet, No. 14 to 20, 05 1/2; Sheet, No. 21 to 24, 06 1/2; COPPER.— duty: Sheathing, 3 1/2 lb; Pig and Bar, 2 1/2 lb; Sheathing, Yellow, 20 00; Sheathing, Old Yellow, 10 00; Composition Nails, 21 00; TIN PLATES.— duty: 25 cent. ad valorem. Plates, Charcoal, 15 lb box, 12 00; Plate, 10 Charcoal, 10 00; Roofing Sheet, 10 00; Banca Tin, 5 lb, 42 00; STEEL.— English Cast Steel, 15 00; CRUCIBLE.— Pig, 10 00; LEAD.— Pig, 10 00; Sheet, 09 00; Bar, 09 00; PIPE.— Zinc—Sheets, 10 00; Borax—Refined, 25 00; Borax, crude, 6 00;

AGENTS CAN MAKE FROM \$1,000 TO \$5,000 A YEAR IN almost any section of the country, selling Dana Bickford's new and improved FAMILY KNITTER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Sent stamped envelope with full directions for an illustrated Circular. Address DANA BICKFORD, Vice President and General Agent, 689 Broadway, N. Y. 23722-6m

San Francisco Retail Market Rates.

FRIDAY, June 9, 1871.

MISCELLANEOUS.			
Butter, Cal. fr. D.....	35	@ 45	
Pickled, Cal. fr. D.....	35	@ 45	
Or Oregon, D.....	35	@ 45	
Honey, 1 lb.....	25	@ 30	
Cheese, 1 lb.....	20	@ 25	
Eggs, per doz.....	30	@ 35	
Lard, 1 lb.....	18	@ 20	
Sugar, 1 lb.....	10	@ 12	
Brown, 1 lb.....	10	@ 12	
Beet, 1 lb.....	10	@ 12	
Sugar, 1 lb.....	25	@ 30	
Plums, dried, 1 lb.....	15	@ 20	
Peaches, dried, 1 lb.....	15	@ 20	

PRODUCE, ETC.			
Flour, dry, 60 lb.....	60	@ 12 1/2	
Flour, ex. 100 lb.....	50	@ 12 1/2	
Superfine, 60 lb.....	50	@ 12 1/2	
Corrus, 100 lb.....	50	@ 12 1/2	
Wheat, 100 lb.....	50	@ 12 1/2	
Oats, 100 lb.....	50	@ 12 1/2	

FRUITS, VEGETABLES, ETC.			
Pine Apples, 100 lb.....	00	@ 00	
Bananas, 100 lb.....	00	@ 00	
Oranges, 100 lb.....	00	@ 00	
Cranberries, 100 lb.....	00	@ 00	
Apples, 100 lb.....	00	@ 00	
Oranges, 100 lb.....	00	@ 00	
Lemons, 100 lb.....	00	@ 00	
Artichokes, 100 lb.....	00	@ 00	
Beets, 100 lb.....	00	@ 00	
Potatoes, 100 lb.....	00	@ 00	
Potatoes, sweet, 100 lb.....	00	@ 00	
Potatoes, new, 100 lb.....	00	@ 00	
Tomatoes, 100 lb.....	00	@ 00	
Broccoli, 100 lb.....	00	@ 00	
Cauliflower, 100 lb.....	00	@ 00	
Cabbage, 100 lb.....	00	@ 00	
Carrots, 100 lb.....	00	@ 00	
Celery, 100 lb.....	00	@ 00	
Chops, 100 lb.....	00	@ 00	
Egg Plants, 100 lb.....	00	@ 00	

POULTRY, GAME, MEATS, ETC.					
Chickens, 100 lb.....	75	@ 10	Tongues, pig, c.....	@ 15	
Turkeys, 100 lb.....	20	@ 25	Bacon, Cal., 100 lb.....	18	@ 20
Corn, wild, 1/2 p.....			Oragon, do.....	18	@ 20
Tame, do.....	50	@ 00	Hams, Cal., 100 lb.....	18	@ 20
Fresh, 100 lb.....	37 1/2	@ 00	Choice D field.....	@ 25	
Tame, 1/2 pair.....	50	@ 00	Whittakers.....	@ 25	
Fresh, 100 lb.....	50	@ 00	Hams, 100 lb.....	12	@ 12
Snipe, each.....	75	@ 00	Salmon, 1/2 D.....	10	@ 12
Snipe, 1/2 doz.....	25	@ 00	Smoked, new.....	@ 12	
English, do.....	25	@ 00	Pickled.....	6	@ 12
Game, 100 lb.....	50	@ 00	Roast, 100 lb.....	12	@ 12
Game, 1/2 doz.....	50	@ 00	Kingfish, 1/2 D.....	25	@ 00
Game, 100 lb.....	50	@ 00	Perch, 1 water, D.....	10	@ 15
Game, 1/2 doz.....	50	@ 00	Roast, 100 lb.....	12	@ 25
Game, 100 lb.....	50	@ 00	Lake Big Trout.....	6	@ 8
Game, 1/2 doz.....	50	@ 00	Smelts.....	6	@ 8
Game, 100 lb.....	50	@ 00	Haddock.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Sin kok, per 100.....	@ 100	
Game, 100 lb.....	50	@ 00	Tomcod, 100.....	6	@ 08
Game, 1/2 doz.....	50	@ 00	Torrpin, 100 doz.....	30	@ 08
Game, 100 lb.....	50	@ 00	Garfish.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Fresh, do.....	10	@ 12
Game, 100 lb.....	50	@ 00	Sea Bass, 1/2 D.....	62	@ 75
Game, 1/2 doz.....	50	@ 00	Sturgeon, 100 lb.....	10	@ 12
Game, 100 lb.....	50	@ 00	Oysters, 100.....	100	@ 25
Game, 1/2 doz.....	50	@ 00	Chcep, 100.....	61	@ 00
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Grahe 1/2 doz.....	50	@ 100
Game, 100 lb.....	50	@ 00	Soft Shell.....	37	@ 50
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12
Game, 100 lb.....	50	@ 00	Thurman.....	10	@ 12
Game, 1/2 doz.....	50	@ 00	Thurman.....	10	@ 12

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MAY 23D.

PRINTERS' FURNITURE.—John Frederick Uhlhorn, Sacramento, Cal.

FASTENER FOR DOORS AND WINDOWS.—Jacob Z. Davis, San Francisco, Cal.

PRIVY.—Frank Riedel, San Francisco, Cal.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of notice:

OPERATING DRILLS.

A. Blatchly, S. F. We have previously described the valuable drill invented by Dr. Blatchly and spoken of the excellent results obtained by it. But the doctor is ever seeking to improve on the past. His present invention relates to improvements in the devices for applying power to rock drilling machines, whereby power at the surface (as the hoisting or pumping engine of a mine) can be applied to operate any number of drills on any level or in any shaft or chamber in the mine. The object is to obviate the many inconveniences which arise when the engines are directly attached to the drilling machines and form a part of them. At the same time, he claims to get many important advantages by his method. His invention consists also in the peculiar construction of a set of sliding bars, operating in combination with pulleys, gears, shafts and universal joints to partially adjust the machine; and in the construction of a cross-shaft, operating with a similar combination, to perfect the adjustment, so that the machine can be operated in all positions and at any angle; also in the arrangement of shafts, gears and pulleys, so that any required number of drills can be operated simultaneously in different parts of the mine from one engine or source of power.

DOVETAILING MACHINE.

—E. Heath, S. F. This improvement in dovetailing machines is more especially applicable to a former invention of Mr. Heath's, for which he obtained a patent under date of June 14, 1870. It consists of an improvement in the cross pieces or guides which serve to hold the boards in the proper position for forming the tenons and mortises, so that, by means of adjustable projecting stops or springs, any width of board can be quickly brought to its place ready for the saws.

AMALGAMATING THE PRECIOUS METALS AND PREVENTING THE LOSS OF MERCURY.

—J. S. Phillips, S. F. This invention relates to an improved process for preparing mercury for use in amalgamating the precious metals, both for the purpose of preventing loss of the quicksilver and for etripping the particles of the metals, which are being amalgamated, of the sulphurous coat or envelope in which they are frequently encased, so that the mercury can act upon them. It is also intended for the better covering of copper plates with mercury.

Editorial Notes Eastward.—5.

After my ride on the locomotive, I retired to a more comfortable resting place in the sleeping car. Here I lay for a while, listening to the regular heating of the wheels over the track, keeping time to our passage, and to the roar and crash as we rushed through the tunnels. I could reflect on the views which might have been seen, were not the blackness of night around us, of mountain lake and stream, yet contented with my comfortable position in the warm car,—all the more contented from my previous exposure.

I thought of the beauties and the sad, romantic story of Donner Lake, and of the

specimens may be obtained at American Flat, and still finer ones in the neighborhood of Aurora. At the south end of Carson valley, on the Aurora road, good specimens of chrysolite may be found. The precious or fine opal has never yet been found in the State, though the common and wood opal occur. Petrified wood is very abundant—in fact, whole trees may sometimes be seen, and some specimens are very beautiful and make very handsome cane-heads and seals, when cut and polished. In many places in the State geodes are plentiful, and nearly all of these when broken will be found to contain beautiful crystals of various colors. Besides the stones mentioned above there are fine quartz crystals, and many specimens of quartz containing gold and silver are to be seen in cabinets, which would make fine seals, if properly cut. In short, Nevada is

he held between the thumb and finger for this purpose, they may be pressed into the end of a stick of hard wood. This test will distinguish from most other minerals, but not from all, as topaz, sapphire, zircon, etc., will also cut glass.

But the diamond is the hardest of all substances, scratches all other minerals and is touched by none, and yields to no file. As it breaks with difficulty, it is sometimes tested by placing it between two hard bodies, as two coins, for example, and forcing them together with the hands. Such a pressure will crush a quartz crystal, but the diamond will only indent the metal. It will not do, however, to place the stone on an anvil and strike it with a hammer—as some have done on this coast—as the blow will crush any stone. The diamond is heavy and can be separated with the gold or platinum particles, if they occur together, by panning.

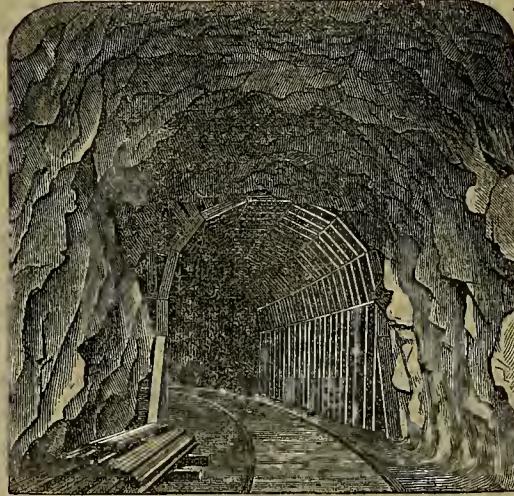
The most certain test lies in the peculiar form of the crystals. They are never long and slender, but always, to lay aside technical terms, approaching a spheroidal shape. The chief point is the curved edges, which in small crystals can only be perceived by the aid of a magnifying glass, but which are always present. It is, perhaps, rare to find a diamond with four curved faces, but such a circumstance places its identity beyond doubt. A common form is a solid with eight sides (octahedron) whose edges are cut off by narrow, interrupted, convex surfaces. Such interrupted rounded angles are sure signs of genuineness.

PALM LEAF HATS.—The only place in the United States where palm leaf braid is manufactured, is in Massachusetts, the principal towns where the trade is carried on being Amherst, Palmer, Barre and Fitchburg. The raw material is brought from Cuba to New London, Conn., in bunches of twenty-five leaves from four to five feet long. The bunches, placed on the stock end, are packed in the bleaching rooms and subjected for sixteen days to the fumes of brimstone. The leaf, after being bleached, passes into the hands of the splitters, and about one-third of the material is rejected. This waste, until recently, was useless, but is now sold as paper makers' stock for fifty dollars a ton, when delivered at the mills. The split leaves are now sent out into the country to be braided into hats and woven into webs for Shakerhodes. This work is done by the wives and children of the New England farmers, and large teams are constantly passing over the steep hills and into the most remote recesses of the country, carrying the raw material to be braided and bringing back the finished work. A large number of persons find employment in braiding, and nimble-fingered girls can earn as much as an adult woman. The pay is small, but odd moments, which otherwise would be disengaged, are devoted to this labor. Country merchants, it is stated, often take the leaf and put it out in the neighborhood, being satisfied with the increase of sales although they make no profit from the braiding.—*Philadelphia Ledger*.

GRASSHOPPERS have made their unwelcome appearance in some parts of this State and in the interior. A man in Utah is said to have invented a machine which catches the creatures by the bushel-basket and passes them between two rollers, after which they need no further attention.



LAKES IN ANDERSON VALLEY.
240 miles from San Francisco.



TUNNEL No. 12.
245 miles from San Francisco—Altitude 6,944 feet.

contrasting calmness of days on Lake Tahoe, which nestles under the snow-clad peaks whence it draws its life-supplies. But my thoughts grew indistinct, and with them mingled the ever-present monotone of the train, until I was surprised to find that daylight was creeping into the car and that I had been sleeping soundly for hours.

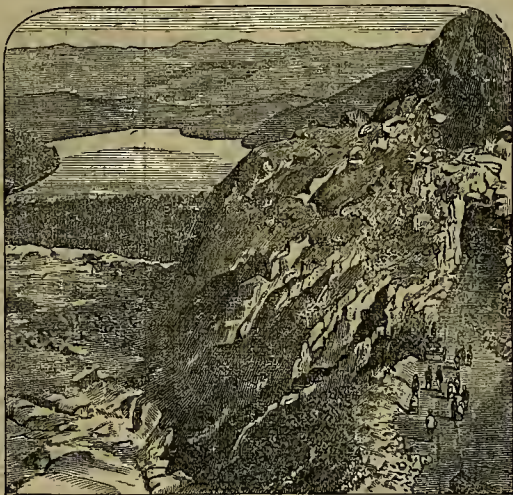
Ornamental Stones of Nevada.

Although neither diamonds, rubies, emeralds, or other precious stones have yet

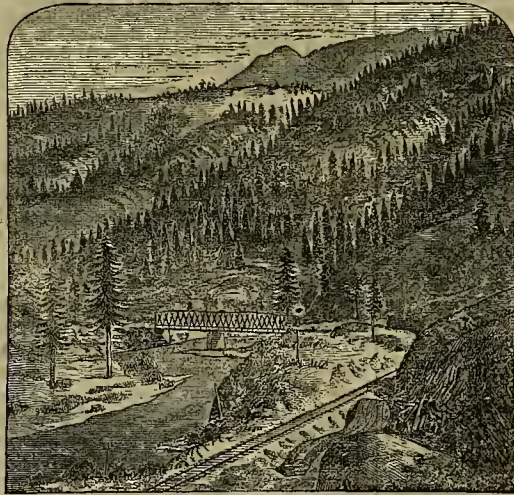
not unlike the land of Havilah, mentioned in the good book—"And the gold of that land is good: there is bedellum and onyx-stone."—*Virginia Enterprise*.

Searching for Diamonds.

Several times persons have brought to us pieces of quartz crystals, enquiring whether they were diamonds. It is known that diamonds occur on our coast, although only very small ones, with one or two possible exceptions, have been found. Still,



DONNER LAKE, AND TUNNELS 7 AND 8.
245 miles from San Francisco—Alt. 5,939 feet.



STATE LINE.
276 miles from San Francisco—Altitude 5,100 feet.

been found in this State, many stones suited to the uses of the lapidary, from their hardness and beauty, are abundant. Jasper of every variety and shade of color is abundant throughout the State; carnelian is to be found in many places, and is quite abundant at Carnelian Bay, Lake Tahoe; agates are also plentiful at Lake Tahoe, at San Antonio, Nye county, at Aurora, and in many other localities. Fine moss agates are often picked up by prospectors in their rambles among the wild mountain gorges and over the stony table lands. Amethysts are quite abundant in the various mines upon the Comstock; those found in the mines at Gold Hill are the best. Garnets are to be found in Washoe county, near Steamboat Springs, but they are of an inferior quality. Chalcedony is to be found almost everywhere in the State. Fine

as it is very difficult for the unpracticed eye to distinguish the gem in its natural condition from quartz crystals or topaz, it is very possible that many a precious stone may have been passed by unnoticed. The diamond occurs of various shades and hues, as yellowish brown, green, blue and rose-red, the finest, however, being white (or colorless), and as it does not display its brilliancy in its rough condition, the unexperienced must test such stones as are suspected to be precious.

The first test is, as to whether the suspected stone will cut glass or quartz with its sharp edge. A diamond will do so readily. When the specimens are too small to

California Wagons vs. Eastern Wagons.

In considering whether our California mechanics can successfully compete with eastern mechanics in supplying the demand for farm wagons on the Pacific coast, let us first direct our attention to the materials with which both have to deal—or to the elements of expense which enter into the manufacturing of wagons wherever that business may be carried on. These are,—first, hard wood for all the running gear of the wagons, embracing all the wood used about the wagon, except that for the box. Second, soft wood for the box. Third, the iron, bolts, etc., for all parts of the wagon. Fourth, oil and paint. Fifth, coal, used in working the iron and fitting it to its place. Sixth, the labor.

We will consider each one of these elements of expense in the order in which they are above named. The first great fact that demands our attention is that we have but very little if any hard wood fit for use in wagons on this coast, and to obtain that hard wood for use here, we are compelled to go into the immediate neighborhood of our most formidable competitors and purchase it. Upon this fact our competitors rely, more than upon any other, to give them the advantage and success over us. That this fact is very much against our State, in a commercial point of view, is very plain. That we have to send, annually, large sums of money to the Atlantic States, to pay for hard timber used here in wagons and other agricultural machinery, is just so much against our general interest and prosperity, and just so much in favor of the general interest and prosperity of the States that obtain our trade in this line.

But does this general fact play any figure in the competition now going on between the California and the eastern wagon makers? Certainly not. Why? Because, if we go into the eastern hard wood country with the cash or with good and undoubted credit, we can buy lumber upon equally as good terms as eastern buyers. We can have all our hubs, spokes, felloes, tongues and all other parts of the wagons got out there at the mills, on the ground, with equal facilities and upon equal terms with the eastern manufacturer. It is true that after they are thus got out they have to be freighted to California at great expense. This, as we said before, must be charged to our general disadvantage, as a State, and not to the particular disadvantage of our wagon makers. For what difference does it make whether the California manufacturer pays the freight on these articles in a raw state, or the eastern manufacturer pays freight on them after they are in the wagon? This freight money in the end has all to come out of the consumer on the Pacific coast, and not out of the manufacturer, either here or there.

If this freight money be equal, taking the hard wood in the completed wagon as the standard upon which freight is to be paid, then certainly there can be no advantage for either of the manufacturers arising out of the location of that timber. If, however, the hard wood can be laid down here in the rough state, by which we mean in wagon lumber style, hubs, felloes, spokes and planks for the other parts of the running gear, so that the freight on that which actually goes into the wagon, is less than the freight on the wood part of the imported wagon, then the California mechanic has the advantage on this one point.

What are the facts in the case? The average freight on hard lumber from New York and other sea ports of the East to San Francisco, is $\frac{3}{4}$ of a cent per pound. Being shipped in a rough state, as above indicated, there is freight paid on a considerable amount of lumber that is wasted in the manufacture. Suppose this waste to be equal to one-fourth of the lumber ship-

ped for each wagon, then the freight on the lumber actually used would be increased to one cent per pound. This calculation is based on the water route by the Horn. And we suppose that it will cost no more, aside from the purchase money, to place eastern hard lumber at the sea board, than it will to place western hard lumber at the shops of the western manufacturers—our real competitors. Then our next inquiry is as to the freight overland,—the route the imported wagons come.

The Studebaker company get their cars from South Bend to Sacramento and other principal points in the State at \$450 each. Each car brings about eight tons in weight on an average. This makes the freight on these wagons come at an average of two and a half cents per pound. Then the freight on the lumber actually used in the imported wagons, costs the eastern manufacturer one and one half cents a pound more than the freight on the lumber actually used in the California-made wagon costs the California manufacturer.

Allowing the wood work of the average farm wagon to weigh four hundred pounds, the California mechanic has, on the item of freight on hard wood alone, \$6 advantage on each wagon over the eastern manufacturer.

On the second item of expense, soft wood for boxes, there is no difference, since the boxes for all the wagons are made here.

As to the third item of expense, iron, we will next inquire.

The English refined iron is the kind mostly used in farm wagons manufactured in California, and the price of this iron regulates the price of American iron of similar quality throughout the United States. We will take this kind of iron then as a basis. This iron comes direct from London and Liverpool to San Francisco, and the freight on it, from those ports to San Francisco, is the same as to New York. This advantage in favor of San Francisco (the distance being greater than to New York), arises from the fact that it is brought here as ballast, in vessels taking grain. We have a little more interest, insurance and other expenses to pay in laying this iron down in San Francisco, than do the New York importers in laying it down there, making the actual cost in San Francisco about one-fourth per cent. greater than in New York. As against this, we may place the freight to the western manufacturers, from New York to their shops, so that as to the expense of this item at the shops of the California and Chicago or South Bend manufacturers, there is no advantage on either side. But after the South Bend or Chicago manufacturer has put the iron into his wagon, he has to pay two and one-half cents a pound freight on it to California, to place his wagon in the California market by the side of the California-made wagon. If the average weight of the iron on a wagon is 400 pounds, it will be seen that the California mechanic has an advantage over his eastern competitor, on the item of iron, of 10 dollars on each wagon. Add this to 6 dollars, the advantage in his favor on the freight of the lumber, and we have 16 dollars on each wagon in the California mechanic's favor. The other three items of expense—paints, coal and labor, we will consider in our next.

FINE ARTS.—The very liberal premium list offered by the State Agricultural Society in the department of fine arts is likely to bring out the finest exhibition of pictures ever made on the Pacific coast, at the State Fair this fall. Judge Crocker has consented to place on exhibition, at the Fair, the large collection of paintings purchased by him in Europe. This very expensive collection contains some of the finest and most valuable paintings in the world. The picture gallery will be one of the most interesting features of the Fair and will afford a rare opportunity to the lovers of fine arts to gratify and cultivate their taste.

An excellent suggestion is made by an English druggist in relation to the dispensing of poisonous substances. He proposes that, in addition to the word "poison," the labels should have printed on their margin the appropriate antidotes for each class of poisons. A bottle containing a mineral acid, for instance, would have on its label, "Poison!—If taken by accident, give (mixed with water) chalk, or soap, or whiting, or ceiling scrapings."

GOOD HEALTH.

Prevention Better than Cure.

[Written for the Press.]

Health is a necessary condition to happiness, and attention should be given to preserving rather than regaining it—our chief aim should be how to prevent rather than how to cure disease.

Let us take consumption. In the highest schools of medicine known, those of Paris, the principal advance lately made is the use of hypophosphite lime and soda to counteract or prevent the formation of tuberculous matter in the lungs. Now it can be proven that by excluding improper food, such as pork, milk, alcoholic preparations and all extraneous excitants; and using very little liquid at the time of eating, thus exciting the salivary glands to their highest state of efficiency; in fact, bringing out the national hypophosphite secreted by that important organ—the first step is taken to prevent consumption.

The age of man should average a hundred years, and he should be able to continue in active usefulness up to that period of life. The human race is capable of being brought up to that standard within a few generations; natural laws are wonderful in this harmony, and efficiency—the evils of diet are corrected, temperance and virtue fostered, man cannot long remain the puny creature of the present day.

Let us then be more agrarian, more Christian, more manly, and instead of wasting our energies in building cities, or in other words, hot houses to produce disease of body and mind, let us be satisfied with less of outside show, fashion, luxury; and cultivate—at the same time that we are cultivating our fields and gardens—a condition of health and contentment. If our suggestions as to the way to prevent consumption, are considered as food for reflection, we may offer others more full and explicit, about the way to prevent or cure some other of the more fatal diseases.

F. M. SHAW.

Fruit Instead of Medicine.

There is no doubt but that the free use of good fruit is highly conducive to health, and indeed almost indispensable to it. Much of the sickness in the western country is occasioned by the want of it. It is the great scarcity of it that creates such a demand for physic in our western country. The various fevers and bilious disorders prevalent in the summer seasons are more owing to the want of it than to any other cause. And not until fruit is generally cultivated, and used as an article of diet, shall we be rid of those disorders which are sapping the life fountains of thousands of our farmers annually. And if fruit were administered in many cases as an article of medicine, instead of the physician's prescription, we have no doubt it would be far better for the patient.

Nature in this, as in all other respects, has bountifully supplied us with varieties which, if properly cared for, will enable us to enjoy a succession throughout the year. But fruit is not only a necessary of life, but it is one of its great luxuries. What is more enticing to the palate than luscious fruit? And as an article of diet nothing equals it. It is easily raised, costs but little, promotes health, and is liked by everybody. Most people content themselves by cultivating two or three varieties. This should not be so. Fruit is more needed throughout the summer season than almost any part of the year. And the varieties which ripen at this time are least cultivated. The farmer cannot take a step which will add more to his own joys, and those of his own family, than by having such a succession as will furnish him the entire year.

First on the list in the spring time comes the delicious strawberry. But a little spot is required for its cultivation for the use of the family. Its healthful qualities are well known. Cities well supplied with it are remarkably exempt from diseases while the strawberry season lasts. We have accounts of wonderful cures effected in ancient times by its use. There are many varieties, but it is not our purpose to note the best of them at this time.

Next in order comes the raspberry, a most excellent fruit, and indispensable to every family. Then follows the blackberry,

the cherry, currants and gooseberries. Then comes the apricot, the peach, the nectarine, and the plum. Apples and pears, also commence ripening early in the summer, and the winter varieties, if properly stored, may be kept till the appearance of fruit next season. Who will not have this succession? How much it could add to homo happiness.

The above writer overlooks the grape, which in many countries is one of the most abundant and cheapest of all small fruits, while it is healthy in all.

Don't Rock the Cradle.

If all the ultimate consequences of one's acts are to be laid to his charge, the man who invented rocking-cradles for children rests under a fearful load of responsibility. The downright murder of tens of thousands of infants, and the weakened brains of hundreds of thousands of adults, are undoubted results of this invention. To rock a child in a cradle, or to swing him in a crib, amounts to just this: the rapid motion disturbs the natural flow of the blood, and produces stupor or drowsiness. Can any body suppose for a moment that such an operation is a healthful one? Every one knows the dizzy and often sickening effect of moving rapidly in a swing; yet where-in does this differ from the motion a child receives when rocked in a cradle? It is equivalent to lying in a ship's berth during a violent storm, which sickens nine people out of ten. A very gentle, slow motion, may sometimes be soothing; though always of doubtful expediency; but to move the cradle as rapidly as the swing of a pendulum three feet long—that is, once in a second—is positive cruelty. We always feel like grasping and staying the arm of the mother or nurse who, to secure quietude, swings the cradle or crib with a rapidity equal to that of a pendulum a foot long. If any mother is disposed to laugh at our suggestions, or consider them whimsical, we beg of her to have a bed or cot hung on cords, then lie down in it herself, and have some one swing it with the same rapidity that she allows the cradle to be rocked. What she will experience in both head and stomach is just what the infant experiences.

We insist that this rocking of children is a useless habit. If not accustomed to rocking they will go to sleep quite as well when lying quietly as when shaken in a cradle. If they do not there is trouble from sickness, or hunger, or more likely from an overloaded stomach; and though the rocking may procure a temporary stupor, the trouble is made worse thereafter by the unnatural meanstaken to produce quiet for the time being.

Sound Sleep.

Any man who can bound out of bed as soon as he wakes of a mid-winter's morning, is worth something. No fear of his not making his way through the world creditably, because he has the elements of a promptitude, decision and energy, which guarantee success. To invalids we make a comfortable suggestion worth knowing. If you have force of will enough to keep you from taking a second nap—and it is the "second nap" which makes its baneful influence felt on multitudes—it is better for you to lay awhile and think about it, until that feeling of weariness passes out of the limbs which you so commonly feel. But to sleep soundly and feel rested and refreshed when you wake up of a morning, four things are essential: 1. Go to bed with feet thoroughly dry and warm. 2. Take nothing for supper but cold bread and butter, and a single cup of tea of any kind. 3. Avoid over-fatigue of the body. 4. For the hour preceeding bed time, dismiss every engrossing subject from the mind, and let it be employed about something soothing and enlivening, in cheerfulness.—*Hal's Journal of Health.*

HOW TO ADMINISTER RAW MEAT.—It has lately become quite common to recommend raw meat for diet for certain maladies, and the London *Lancet* gives directions for its manner of administration, as follows:—"The fillet should be preferred, as being the most delicate and the richest in muscular fibrin. It should be freed with the utmost care from fat and tendon. It should be finely minced, and then brayed in a mortar of wood and stone. When reduced to a paste it should be covered with sugar, gluten, or vegetable gelatine, to overcome the repugnance with which it is at first naturally regarded. Some prefer to squeeze out the juice, and swallow it mixed with a little orange-water, etc., whilst others again make it into houses, and take it in slightly warmed beef-tea or soup."

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STROMG,
W. B. EWER, JNO. L. ROONE.

Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

NEW YORK OFFICE: Room 25, Park Row. W. E.
PANTIDGE, Editorial and Business Correspondent.

San Francisco:

Saturday Morning, June 10, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, June 7, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
110½.

Table of Contents.

Peteler Portable Railroad, Ill.; Mechanics' In- stitute	353
MECHANICAL PROGRESS.—Punching; New Belt- ing; Sewing Machine Motor; International Exhibition; Bending Discs of Silvered Glasses; Needles.....	354
SCIENTIFIC PROGRESS.—Science of Color; The- ory of a Nervous Atmosphere; Pangenesis;	354
Wastage of the Precious Metals; Kearsarge Mine, Inyo Co.; Siege of Paris—Dynamite	355
MINING SUMMARY; Shareholders' Directory; Mining Stocks; Market Rates.....	356, 357
List of Patents; Notices of Patents; Editorial Notes Eastward, Ill.; Ornamental Stones of Nevada; Searching for Diamonds; Palm Leaf Hats.....	358
California Wagone vs. Eastern Wagone; Pre- vention Better than Cure; Fruit vs. Medi- cine; Rocking the Cradle.....	359
The Miners' Strike; Diamond Drill; Railroad Progress; Gold Mines at Big Trees.....	360
Academy of Sciences; The Eclipse of 1870, Ill.; Mechanics' Institute; Am. Institute of Min- ing Engineers; Toland Medical College.....	361
Oysters in the Kitchen; Cooking as a Science; Domestic Receipts; Mechanical Hints.....	362

The Miners' Strike.

On June 1st, the miners at Sutter Creek, Amador county, struck in all the mines of the district, closing them up and allowing no one to work until at least \$2.50 per day should be paid for wages. We hear of no actual violence done. The Amador company refused to make the concession demanded and affairs are now at a dead lock.

We are extremely sorry that any such occurrence should have taken place. Now that it has occurred, we see but one way by which the affair can be settled without bitter feeling, and that is the method lately tried successfully in England and the East,—arbitration. Delegates from both parties should meet to arrange the matter, if possible, and, if not, to leave the decision to a referee chosen by both sides, by whose decision all agree implicitly to abide.

The employers have no right to grind down the workmen, and the employees have no right to dictate terms to the employers or prevent others from free action. A strike results always in a loss to both parties. The question to be decided is, what is a fair remuneration for the labor? The answer can be obtained only in the manner indicated above.

THE DIAMOND DRILL AT SMARTSVILLE.—We are assured that the comparison between the diamond drill tunnelling machine and hand labor was really much more favorable to the former than we stated last week. We then said that with hand labor and black powder the cost of mining in the tunnel per foot was \$40, and the average daily progress was one foot. This was true for the total average of the tunnel, and with *giant powder*. But for the last 200 feet, where the hard rock was met in which the machine worked, a daily progress by hand drilling, less than 10 inches was made at a much greater cost per foot. The machine makes in this, as then stated, 2.6 feet per day, at a cost of \$24 per foot.

THE Sonoma and Marin District Agricultural Fair will be held on the 25th of September.

Railroad Progress.

Washington Territory and Oregon.

The Northern Pacific is being pushed with energy. The road is rapidly advancing at the eastern end. The first spike of the Pacific division was driven on May 16th, at Kalama, W. T., and grading, track-laying, etc., are progressing actively. The contract for grading 25 miles from Kalama towards Puget Sound calls for the completion of this in October. The route of the road is still a secret. The citizens of Walla Walla have been active in their endeavor to have it run through their place. At least, it was stated that, per agreement with the N. P., they paid to have a survey made with this view, from their city to Wallula, on the Columbia River, 31½ miles. This showed the whole fall between the two points to be 600 feet; heaviest grade, 69 feet; estimated cost, \$21,271 per mile. The W. V. Union, of May 27th, publishes the report of the survey, which is to be laid before the N. P. Co., although the line would appear to be only a feeder.

On the Oregon and California Railroad work has also been progressing, the track being completed to the Calipoya river, 10 miles south of Alhany, on April 14th. On April 28th, construction trains were running to the one-hundred mile stake. The citizens of Eugene City and of Harrisburg have been troubled lest their places should be left one side of the line, and are raising money to have it run to them. Holladay agreeing to accommodate them if they would subscribe \$60,000; Eugene City had raised \$10,000 by April 18th. The reported junction with the new California Pacific Extension Eastward has given rise to fresh conjectures, but as two connections are given, it would appear that the interests of Southern Oregon will still be subserved.

The Portland City Council has appropriated \$5,000 towards the survey of the Portland, Dalles and Salt Lake R. R. The narrow gauge road from Yaquina Bay to Corvallis, on the Willamette, is still talked of. Surveys are to be made immediately by the Columbia River and Willamette R. R. Co., for a line from Salem to the Columbia, as a feeder, it is said, of the Northern Pacific.

California.

Work has not yet re-commenced on the California and Oregon R. R. We have already spoken fully of the new route through the northern counties, Oregon and Idaho, connecting the California Pacific and the U. P. R. R.

THE CALIFORNIA PACIFIC has been very active. It has purchased the Sacramento line of boats. It consummated on April 13th the purchase of the S. F. and Northern Pacific R. R., from Donahue's Landing to Santa Rosa, Sonoma county, 31 miles; and on May 7th commenced grading on this end of the connecting line from Adelante (junction of the Sacramento and Napa Valley branches), passing within a mile of Sonoma to Petaluma; and the northern end was finished on May 6th to within six miles of Healdsburg. Early in May the gauge of the Oroville road was changed to conform to that of the California Pacific.

SAN JOAQUIN VALLEY.—Several months ago, Stockton and San Joaquin county voted \$500,000 in bonds, payable on completion of 25 miles of road, to the Stockton and Visalia R. R. The legality of the action was questioned, but was lately reaffirmed by the Supreme Court. But since the vote the C. P. R. R. has built the San Joaquin Valley R. R. south (from Stockton) to Modesto, and the Stockton and Copperopolis road has been completed by the California Pacific R. R. to Peters.

These facts have led the Stockton and Visalia company to make an arrangement with the Stockton and Copperopolis road, whereby they build from Peters to Visalia, and work on this line will be commenced soon. Material for it has already been forwarded. On the San Joaquin Valley road work is reported as recommenced about the first of the month. Thus, it would appear, there will be two competing lines up the valley from Stockton to Visalia.

About the first of April, a survey was commenced (since finished) of a branch road from Holden, on the Copperopolis R. R., to Ione, Amador county, via Linden. 29 miles.

CENTRAL PACIFIC.—This company has been running lines for a short route from Sacramento to San Francisco. The Vallejo Recorder says that four routes have been surveyed:—1st, Sacramento to Collinsville,

across the Sacramento river, to Oakland; 2d, Sacramento to Benicia, across the Carquinez Straits, to Oakland; 3d and 4th, two lines via the "Middle Ground" below the junction of the Sacramento and San Joaquin rivers. Another line has been reported from Sacramento to the head of San Pablo Bay, via San Rafael, to Sausalito.

It has been said that the Central and the Southern Pacific would soon commence improving the 60 acres of submerged land in Mission Bay, San Francisco, granted by the Legislature for their terminus.

SOUTHERN PACIFIC.—Work was commenced, on April 13th, from Gilroy to the Pajaro River, 5 miles, and also at Hollister, 16 miles further south, with 500 men. Construction trains were running across the Pajaro on May 4th. The section of 20 miles must be completed, according to legal requirements, by July 1st. The work will then go on more slowly, it is said, the law requiring only 20 miles per year.

The amended incorporation of the company, filed May 15th, mentions three lines of road: 1st. (main line.) S. F., through counties of San Mateo, Santa Clara, Monterey, Fresno, Tulare, Kern, San Bernardino and San Diego, to the Colorado River, 720 miles. 2d. (Branch.) Tehachepa Pass (Kern county) via Los Angeles, to Texas Pacific Road, at or near the Colorado River, 324 miles. 3d. (Branch.) Gilroy (Santa Clara county) through Santa Cruz county to Salinas, Monterey county, 45 miles.

The Kern County Courier, of May 27th, says that land has been withdrawn for the railroad which has filed a map showing its route, which is, after crossing the Tulare Valley, via Tehachepa Pass, Soledad Pass (Los Angeles Co.), San Geronimo Pass (San Bernardino Co.), Chahuilla Valley (San Diego Co.), to Fort Yuma.

Overland Roads—New Projects.

The Texas Pacific has organized at the East and is reported active. A telegram says that the Atlantic & Pacific road was in running order, on May 25th, from St. Louis to Grand River, Indian Ter., some 500 miles, and graded 20 miles beyond. The *Atla* says that the directors of this road, to run to about the 35th Parallel, are to come out here soon. According to these and previous statements and rumors, we are to have five grand overland routes to this coast, as follows:

1. Northern Pacific. Lake Superior to Puget Sound.
2. U. P. R. R. and California Pacific.
3. Central Pacific and extension eastward.
4. Atlantic & Pacific, along the 35th parallel.
5. Texas Pacific, along the 32d parallel.

In this connection we may mention a late statement of the San Joaquin Republican, which predicts that the extension of the U. P. west will be, not via Idaho and Oregon, but south of the C. P. to Stockton, connecting, not with the Cal. Pacific at Davisville, but with the Stockton & Copperopolis (under the control of the Cal. P.).

Besides the new roads alluded to above, several others are still the topic of conversation. The Nevada, Grass Valley & Marysville are considering Mr. Harris' report. A party started out, sometime ago, to survey a line for a narrow gauge road along the coast, from S. F., via Santa Cruz, San Luis Obispo, Santa Barbara, San Buenaventura, Los Angeles and San Diego. The *Pajaronian* reported the party at Watsonville, Santa Cruz county, on May 27th.

A contract is reported let to Gen. Banning for 50 miles of a line from Los Angeles to the coast. The survey of a road from Santa Cruz to San José was commenced April 19th, and completed May 26th. The Oakland Central R. R. Co. was incorporated June 2d; object, to build a road from Oakland to San Pablo, 12 miles. It is also proposed to build a road in Humboldt county from Hookton to tide-water on the Eel River.

Of the Antioch & Visalia, and S. F. and Menlo Park (narrow gauge) roads we have heard nothing lately.

Nevada—Utah—Colorado.

Of the Nevada narrow gauge projects, only two have been heard of lately. The Reno & Virginia City has been surveyed and located, as has the Elko & Hamilton. Of the Unionville & Mill City, and the Palisade, Eureka & Hamilton, we have no account.

Work on the extension of the Utah Central from Salt Lake south was commenced May 9th. The first spike was driven by Brigham Young on June 6th.

At the beginning of May, the charges for freight were raised on the U. P. and the C. P. roads. This seriously affected the inte-

rior for the worse, and it is to be hoped that the old rates (at least) may be re-adopted.

In Colorado work is being pushed on the Denver & Boulder Valley road and the Denver & Rio Grande. The citizens of Central City and of Georgetown have been taking active measures to get roads built to their respective places.

Gold Mines Near the Calaveras Big Trees.

There is no mining field which offers greater inducement for the investment of capital than the western slope of the Sierra Nevada. The wonderful productiveness of such mines as the Amador and the Eureka in the great depth reached, the late successful working of claims formerly abandoned as worthless, and the discovery of other rich lodes, are bringing the auriferous quartz veins of this region into prominent notice.

A recent discovery near the Big Trees in Calaveras county is likely to take rank among the first mines of the State. The veins here present many striking features of interest, and seem to answer in the fullest degree the definition of true fissure veins, "fissures proceeding from indefinite depth and filled from below, by chemical processes, with matter differing in nature from the country rock." Like many of the most noted veins of the world, they occur in fissures which have been opened in the earth's crust by the rending asunder of the rock formation across its stratification.

The country rock is slate. This contains numerous dikes of traps, porphyritic greenstone, etc., occupying fissures which run transversely across the slate. The igneous character of the dikes denotes that these rents extended down to the fiery interior of the earth. The gold bearing lodes are found in precisely the same kind of fissures, which is certainly suggestive of their origin. Moreover, the nature of the deposits denotes that they were formed under conditions possible only in fissures extending into the deep interior of the earth, and hence comes an assurance of their permanency.

There are here several parallel fissures, nearly vertical, having a course of N. 40° E., with very solid and smooth walls, and from 5 to 12 feet wide. In these occur the quartz veins, the quartz occupying only a portion of the space (3 to 9 feet) the balance being filled by an accompanying vein matter differing from the country rock, and not found outside of the fissure walls. The whole of this vein matter is full of base metals, particularly the sulphurets of iron, deposited in a way that indicates a previous state of solution or possibly vapor; for besides being disseminated throughout the body of the rock, the faces of broken pieces, which had no seams visible to the eye, are often found coated with particles of metal, forming flakes that can be removed with a knife blade.

All of this material contains some gold, but the pay rock proper occurs in chutes of a peculiar kind of quartz which is held by many of the miners to belong to the true chimneys of the precious metals. It is so thoroughly impregnated with the various base metals, especially the sulphurets of iron, lead and zinc, that not an ounce of it can be found destitute of these. The gold is diffused in fine particles through the ore, as if an element of its composition.

The ore of these lodes is of high grade. The Calaveras Gold Mining Company, whose mines are situated here, lately had five tons, taken as an average sample from a dump of several hundred tons, worked in the Angel Co.'s mill, and obtained a yield of \$50.80 by simple treatment in a wet battery. The company own three lodes, all situated convenient to one mill, with abundance of pure water and an inexhaustible supply of timber near the mines. They are now erecting a 20-stamp mill, which will be finished about the first of July.

Much the larger number of gold-bearing quartz veins throughout the mining region belong to the pocket class. In these there are no regular paying ore chutes. The gold they may contain seems an accidental deposit. As a rule such do not pay to work. But they are said to be easily distinguished from the former class by the absence of the base metals and by the appearance of the quartz.

Our New York Office.

The steady increase and extension of our business has rendered it desirable that we should be locally represented in the Eastern States, and we are now pleased to announce that Mr. Dewey has established our "New York Office" at No. 37 Park Row, (Room 25) in charge of Mr. W. E. Partridge, editorial and business correspondent for this journal.

Mr. Partridge is an excellent writer, of considerable experience, on practical, scientific and industrial subjects, and will favor our readers with the freshest and most important information from the Eastern States, regarding new inventions and all industrial matters of special and general interest to our particular class of readers.

He will also attend to all business matters which may be more conveniently transacted with him by our Eastern patrons, having full authority from us to do so.

Academy of Sciences.

The regular meeting was held on Monday, Mr. G. H. Bloomer presiding. Various contributions to the cabinet were received,—dried plants from England; nine species of grasses, genus *Stipa*, three of which were new, from Prof. Bolander; etc. Dr. Cooper presented a paper on the shells collected by Mr. H. Hemphill in the adjoining States and Territories.

Prof. Bolander read a communication from Prof. Asa Gray, of Cambridge, inquiring about the intended invitation of this Academy to the American Association for the Advancement of Science. Dr. Cooper stated that an invitation had been extended, but to set all doubts at rest, it was unanimously resolved that the American Association for the Advancement of Science be invited, by this Academy, to hold their annual session for 1872 in the city of San Francisco. Mr. H. Heyneman advised the propriety of requesting the Chambers of Commerce and other bodies of the city to unite with the Academy in the invitation, and it was resolved that this question be discussed at the next meeting.

THE COLUMBIA CO-OPERATIVE FOUNDRY Co., incorporated last March, has started work at 133 & 135 Beal street. They pay particular attention to castings for mills and house-fronts, and we commend them to the attention of our readers. They are now putting up the castings for a large building on New Montgomery street, extending from Howard to Minna, for the Montgomery Real Estate Co., and we hope to hear soon that they are crowded with orders.

IMPORTANT DECISION.—On Monday, June 2d, Judge Stanley, of the County Court, delivered an interesting and important decision, declaring unconstitutional the Act of the Legislature, of March 26th, 1857, which authorizes the Harbor Master to collect tonnage on vessels entering the port. The tax has been a heavy burden and the decision will be hailed with general pleasure.

ENDLESS WIRE ROPE-WAY.—A working model of Hallidie's Endless Wire Rope-Way has been set up in the store of A. S. Hallidie & Co., 519 Front street, where it has been seen in operation by very many persons. The general opinion is that it will work well, and the general opinion is undoubtedly correct in the present instance.

BLUE LAKE WATER PROJECT.—The *Calaveras Chronicle* says that work will soon be commenced on the canal of the Blue Lake Water Company, and that contracts have been let for digging a considerable portion. The canal is to be 4 feet deep, 10 feet wide at the bottom and 16 feet wide at the top.

EARTHQUAKES are mentioned at the East and elsewhere. An earthquake and volcanic eruption on an island in the China Sea destroyed 600 lives.

The Eclipse of 1870.

Of all astronomical phenomena none can compare with a total eclipse of the sun for grandeur and for effect on the mind of man. We know from the history of the world what the effect has been on the human race, how it has caused first fear and reverence, then wonder and a strong desire to investigate into the reasons and concomitants of so extraordinary an appearance.

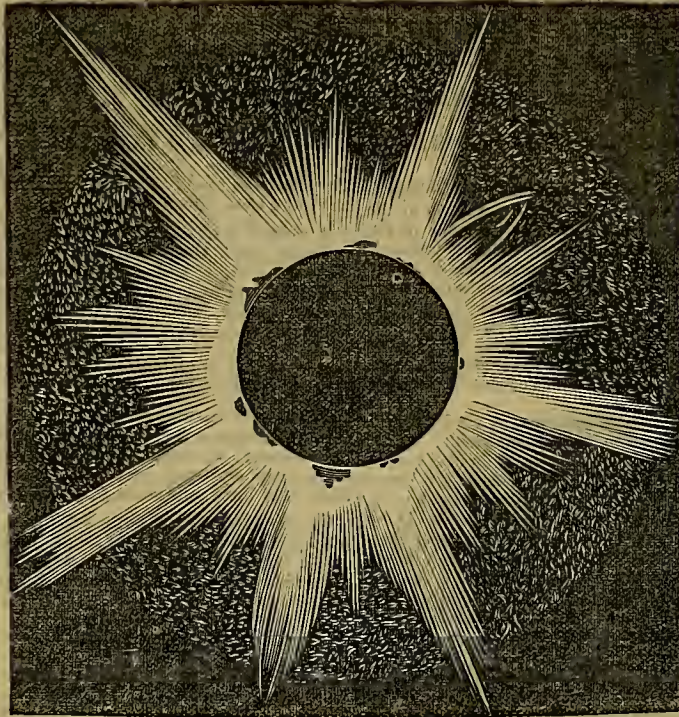
As each eclipse has occurred, the scientific world has given to it more and more attention, for the occasion gives opportunity for investigating matters which are, at other times, difficult to examine. Probably no such extensive preparations have ever before been made as were taken for the eclipse last year, and although we have noted the results from time to time, yet a

Jaansen, who left Paris, then besieged, in a balloon.

The Americans at Sicily and Spain were the most successful, although not entirely so. The English party were wrecked, but still were able to take some observations. The French savant reached Algiers only to find the day so cloudy that he could see nothing.

The main object of all the expeditions was to investigate the nature of the corona, that halo of silver light of strange and varying forms, which has proved such an enigma to astronomers. Was it altogether a solar phenomenon, or was it only due to atmospheric influences, to diffraction or irradiation, or was it due to both, or was it only an optical delusion? Such were the questions to be answered.

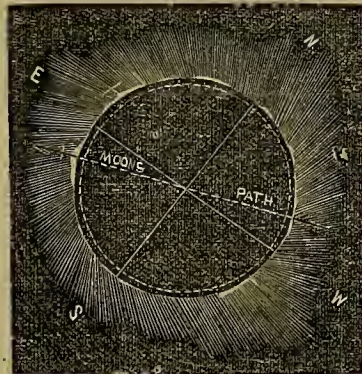
To give an idea of the singular difference existing between drawings of the corona, we give the following illustrations. Fig. 1 is a copy of a drawing made by the Italian Professor Agnello, and Fig 2, that made by Dr. Mayer, of Burlington, Ver-



ECLIPSE OF THE SUN, DEC. 22, 1870.

general article on the matter will not be superfluous at the present time.

This United States took a prominent part in investigating the phenomena of the total eclipse of Dec. 22d, 1870. This eclipse passed southwesterly over the Atlantic, across the southern part of Spain, the north coast of Africa, through Sicily, to Greece and Turkey. Congress appropri-



ated \$29,000, and two expeditions were sent out from our country.

The Washington Observatory also fitted out an expedition. The English government was somewhat backward in the matter, but was finally induced, mainly through the efforts of Prof. Pierce of the U. S. coast survey, to furnish a man-of-war to carry observers to various points in Spain, Algeria and Sicily. Another expedition was fitted out by Lord Lindsey, a young English nobleman; and the French were represented by the eminent physicist,

mont, of the eclipse of 1868. They have been previously published in the *London Engineer*.

We cannot go into the details of what was done. These we have already published. Suffice it to say that the observations were of four kinds:—spectroscopic, photographic, polariscopic, and sketching with the naked eye or with the telescope. Various instruments of ingenious construction were devised to aid in the observations.

It was found that the corona is a solar phenomenon, and that there is what is supposed to be a new chemical element. It exists to a height of 50,000 to 150,000 miles above the sun's surface, shines partly by its own light and partly by the light of the sun. The atmosphere has at its lowest depth not more than one-twentieth the density of our atmosphere, yet sustains the weight of an atmosphere at least 50,000 miles high and attracted by the great mass of the sun. Such an elasticity denotes a tremendous amount of heat.

The amount of light during totality was measured. The existence of dark spaces in the corona was proved. Photographs and drawings were made and valuable observations. Until all of these are published, it is impossible to form exact conclusions; but enough has been done to show that man's knowledge concerning the great luminary which supports our life, is much more complete than it was before the hundred seconds of darkness fell on the face of the earth at 2 P. M. on the 22d of December, 1870.

MECHANICS' INSTITUTE ELECTION.—This took place last Monday evening. The ticket was elected without opposition as made out by the nominating committee. The seven Trustees chosen were as follows: B. P. Bruner, W. H. Williams, J. Wartenstein, J. R. Wilcox, T. Nelson, C. F. Bassett and H. W. Jones. The term of office is two years.

American Institute of Mining Engineers.

On the 15th of May, a convention of some of the leading mining, engineers and iron masters was held at Wilkesbarre, Pennsylvania, at which a permanent organization was formed under the above title. The convention held meetings during three days. Various papers were read and excursions made to various points of interest in the vicinity.

The object of the Institute, as then stated, is to encourage the free discussion of the various theories of mining and the exchange of the accumulated knowledge of engineers, superintendents and others in mastering the problems which are constantly presenting themselves; among which are included the consideration of more economical systems of mining coal and metals, improved methods of transportation above and below ground, the ventilation of mines, the mechanical preparation of coal and other minerals, the various metallurgical processes, and all other questions tending to the attainments of greater economy in the production of minerals and metals, and the greater safety and welfare of those employed in these industries. The by-laws adopted admit of three classes of membership: full members, honorary members, and associates. Every member must be a practical mining engineer or be in some way directly interested in the profession. A membership fee of ten dollars per annum is depended upon for revenue sufficient to meet the expenses of the institution, and any surplus funds which may accumulate are to be expended in the publication of such works of scientific and practical interest as the council may direct.

The following were elected officers:—President, David Thomas, Catasauqua, Pa.; Vice-Presidents, R. W. Raymond, New York; E. B. Coyes, Dufton, Pa.; W. R. Symons, Pottsville; W. P. Blake, Washington, D. C.; J. F. Blandy, Philadelphia; J. H. Swoyer, Wilkesbarre. Managers, R. P. Rothwell, Wilkesbarre; T. S. McNair, Hazleton, Pa.; G. W. Maynard, Troy; Raphael Pumpelly, Cambridge, Mass.; Thos. Petherick, Scranton, Pa.; T. M. Williams, Wilkesbarre; Thos. Eggleston, Jr., N. Y.; E. Gaujot, Pottsville; Fred. Prime, Jr., Easton, Pa. Secretary, Martin Coryell, Wilkesbarre, Pa. Treasurer, J. Prior Williamson, Wilkesbarre, Pa.

Evidently the movement has the support of the strongest men of the profession, and will undoubtedly prove highly beneficial to mining industry.

Toland Medical College.

The introductory lectures of the ensuing course at this institution was delivered last Monday evening by Prof. George Hewston, M. D. The college has been remodeled, has received very considerable additions to its cabinet, apparatus, etc., etc., has chosen a new Faculty, and now starts with renewed auspices. A large number of ladies and gentlemen inspected the arrangements on the evening named, and attended the lecture.

Dr. Hewston, in his lecture, touched briefly on the past, and spoke of the present of the college. He alluded to the duties of physicians to themselves and to society, and to the responsibility and grand objects of the vocation upon which the students were entering. He claimed superiority for the American system of medical education. He touched upon some of the points in which so great advance has been made in medical practice and to the grand discoveries within moderately recent periods. The lecture was excellent in substance, pleasantly delivered, clear and pointed, and altogether a model of its kind. It would indicate that the faculty possessed not only the requisite knowledge, but also the requisite ability to impart their knowledge to others.

Rev. O. P. Fitzgerald, State Superintendent of Public Institution, then delivered a short address. The regular course of lectures at the college commenced on Tuesday.

THE HYDE STEAM WAGON has arrived at Salt Lake City.

DOMESTIC ECONOMY.

Oysters in the Kitchen.

OYSTER SOUP.—Put two quarts of oysters, liquor and all, in a pan; set them on the stove to heat, but don't let them boil, or come very near to it; now drain all the liquor into your soup kettle, put in a pint of water and two quarts of new milk, half a pound of butter, a little whole allspice and pepper; have the oysters all this time where they will keep warm, add them and salt to taste; just as you are to serve the soup, break up some crackers fine and put into the soup before the oysters are put in. Salt should always be the last thing put in any soup, stew or fricassee, where milk is used, or it is apt to curdle. Oysters should never be boiled, but only scalded; it makes them tough and shrinks them all up; if they are to be stewed, heat them hot, but don't boil them. Always have the soup or gravy hot.

OYSTER STEW.—Put as many good oysters, with their liquor, as you think you will need, into a pan on the stove to heat, but not boil. Drain the soup into a sauce pan; as soon as it boils add half a pound of butter and some pepper; when this boils add a pint of cream and thicken a little with flour; after this boils up once, put in the oysters and more salt if necessary. Serve hot.

OYSTER PIE.—Line a deep basin with puff paste, fold a large towel and place inside to support the lid, then roll and ornament a piece of paste, the same as for a common pie; put on the basin and bake slowly; have an oyster stew made as above, without cream, and fill the basin as soon as the paste is done. Serve immediately.

OYSTER TOAST.—The same only no cream, thicken the juice a little with flour; when the stew is ready have a few slices of toast laid in a dish (well buttered), and pour the oysters into it. It is best to heat the dish hot that you put your oysters in to send to the table, as they are so much hotter than merely warm.

OYSTER FRITTERS.—Make a batter of milk, flour, eggs, cream of tartar, salt, salt in proper proportion. Don't make any thicker than for pancakes. Drop an oyster into each spoon of batter as you dip it out and fry in hot lard; brown well on both sides.

OYSTER STEW WITHOUT CREAM.—Make in all respects the same as with cream, only substituting half a pint of water for the cream. Many persons prefer oysters stewed in this way.

OYSTERS FRIED.—Drain the oysters well, roll in fine rolled crackers, and fry in hot lard and butter, two-thirds lard and one-third butter.

CONSOLING.—Housekeepers who groan under the burden of "Blue Monday," (wash day), will be glad to know that the process of washing in Europe, or in many parts of it, requires twice as much time as in the United States. In this country clothes dry far more rapidly. On the other hand bread dries very quickly in this climate, and a new supply has to be made with discouraging frequency. In Germany, housekeepers make up a batch of bread that lasts several weeks, keeping soft and fresh all the time. The greater dryness of our atmosphere is attributed to the prevalence of west winds, which instead of coming from the sea, as in Germany, sweep across great dry prairies, losing in the transit much of their moisture.

Eating Economically.

We copy the following highly valuable and interesting article from a medical work, thinking it well worth preserving:

What kind of food has the most nourishment and the least cost, is a question of great practical importance. The following tables may be studied with considerable interest by every family. They will show the mode of preparation, the amount of nutriment, and the time required for the digestion of the most common articles of food placed upon our tables. A dollar's worth of meat at twenty-five cents a pound, goes as far as fifty cents' worth of butter, at half a dollar a pound. Three pounds of flour, at eight cents a pound, is said to contain as much nutriment as nine pounds of roast beef, which, at twenty-five cents, is \$2.25; that is, twenty-five cents' worth of flour goes as far as nine times that much money spent for roast beef, as weighed at the butcher's stall. A pint of white beans, weighing one pound, and costing seven cents, contains as much nutriment as three

and a half pounds of roast beef, costing eighty-seven and a half cents. Of all the articles that can be eaten, the cheapest are bread, butter, molasses, beans and rice. A pound of corn meal (Indian) goes as far as a pound of flour; so that fine family flour at sixteen dollars a barrel, in New York city, in July, 1864, and corn meal at four cents, the latter is just one-half as expensive. If corn and wheat were ground, and the whole product, bran and all, were made into bread, fifteen per cent. of nutriment would be saved with much greater healthfulness. These are standard tables:

Food.	Preparation.	Nutriment. Per cent.	Digestion. Hrs & Min.
Cucumbers.....	Raw.....	2.....	3.30
Turnips.....	Boiled.....	4.....	2.15
Milk.....	Fresh.....	7.....	4.30
Cabbage.....	Boiled.....	7.....	4.30
Apples.....	Raw.....	10.....	1.15
Potatoes.....	Boiled.....	13.....	2.30
Fish.....	Boiled.....	20.....	2.00
Yeast.....	Boiled.....	22.....	1.30
Veal.....	Roasted.....	25.....	5.15
Leaf.....	Roasted.....	26.....	3.30
Poultry.....	Roasted.....	27.....	2.45
Mutton.....	Roasted.....	30.....	3.15
Bread, Wheat.....	Baked.....	80.....	3.30
Bread.....	Baked.....	80.....	3.30
Rice.....	Boiled.....	83.....	2.30
Butter and Oil.....	.....	96.....	1.00
Sugar, Syrups.....	.....	95.....	3.30

Cooking as a Science.

We heartily endorse the following from Moore's *Rural New Yorker*:

"If Medicine is a science, then Cookery is a science; and to tell the exact truth of the matter, the more important science of the two. If the science of cooking were advanced to the same degree as that of medicine, how very little need there would be of the latter! But alas! it is largely in the hands of the most ignorant women in the world. A few men have given their time and talents to the advancement of the science, and the gratitude of the race should be theirs.

Why must this science, so vital with interest and value, longer languish? Must women have the elective franchise before they learn to cook? Must they first learn to cure our ills, before learning how to prevent them? Must the title of M. D. be so immeasurably and falsely greater than that of C. D.? Are they to fold their hands and wait until men have lifted the science to high honor, usurped the domain themselves, and then moan because they are shut out of the science kingdom on account of unfitness?

It seems to us that now is the day and the hour for women to act in this matter. How many RURAL-reading women are willing to devote two or three years to the study of Cookery which must necessarily embrace chemistry, physiology and hygiene? It would be folly, indeed, to found a university for Domestic Science, if there be no active demand for one. Will not the enterprising young women who read this, digest the matter, and send us their thoughts in regard to it.

DRINKING BUTTERMILK.—Persons who have been in the habit of drinking buttermilk consider it disagreeable, because slightly acid in consequence of the presence of lactic acid. There is not much nourishment in buttermilk, but the presence of the lactic acid assists the digestion of any food taken with it. The Welsh peasants almost live upon oat-cake and buttermilk. Invalids suffering from indigestion will do well to drink buttermilk at meal times.

HOW TO COOL A ROOM.—Now that the hot weather is full upon us it may be interesting to be reminded that the simplest and cheapest way to cool a room is to wet a cloth of any size, the larger the better, and suspend it in the place you want cool. Let the room be well ventilated, and the temperature will sink from ten to twelve degrees in less than an hour. This is the plan adopted by many eastern nations.

POISON.—The house wife cannot be too careful in handling poison or in allowing it to be kept about the house. To prevent constantly recurring accidents, it has been suggested that arsenic and other poison, be put up by druggists in red paper and marked with the skull and cross bones, as is done in some parts of Europe, and that in fluid poison the same symbol should be put on the bottle. This the most illiterate could understand. Especially that skull and cross bones.

THE VALUE OF A COOKING RECIPE.—The Prussian Government, about the time of the breaking out of the late Franco-Prussian war, gave \$50,000 to a Berlin cook for his secret of making peas-pudding sausages that will not turn sour.

Domestic Receipts.

TO PRESERVE STRAWBERRIES AND RASPBERRIES WITHOUT BOILING.—A correspondent of the *German Town Telegraph* who has long practiced the method, recommends the following:—The berries should be picked when the fruit is dry, and put at once into a deep bowl or pan, and bruised gently. Mix with an equal weight of best "sifted" sugar, and put immediately into wide-necked bottles; cork these firmly without delay, and tie bladders over the top. Keep them in a cool place, or the fruit will ferment. This mixture should be stirred softly, and only just sufficiently to blend the sugar and the fruit. The bottles must be perfectly dry, and the bladders, after having been cleaned in the usual way, and allowed to become nearly dry, should be moistened with a little whiskey or alcohol on the side next the cork. I have thus successfully put up both strawberries and raspberries for future use for ice creams, or cakes or for tarts, without boiling.

HOME-MADE INK.—The ink made as described below is said to be beautifully black and flows freely, and does not in the least corrode the pen. It is far superior to the usual acid inks, which will spoil the best steel pen in a few hours' use. To five gallons water at boiling heat, add one-half ounce bicarbonate of potash, and one-half ounce prussiate of potash. Your ink is then made and ready for use. The cost is not more than fifteen cents per gallon.

A SWISS SOUP.—Boil three pounds of potatoes, mash them well and add slowly some good broth, sufficient for the tureen. Let these boil together, and some spinach, a little parsley, lemon, thyme and sage, all chopped very fine. Boil together five minutes; pepper and salt to taste. Just before taking it off the fire to serve, add two well-beaten eggs.

BUNS.—One pound of flour, one spoonful of baking powder, mixed well together; two ounces of lard, sugar, currants or seeds, one egg and a teaspoonful of milk. Make into buns, and bake immediately.

TO CLEANSE BLACK SILK.—Boil an old black kid glove till it begins to dissolve, strain the water, and sponge with it the right side of the silk; iron while damp on the wrong side.

Mechanical Hints.

TO MAKE A CONCRETE FLOOR.—The following recipe, supplied by a famous English authority, is quoted by the *Agricultural Gazette*, and may be useful to some of our readers:—"Three parts coal ashes (those from the blacksmith's forge to be preferred) and two parts gas lime from gas works, to be thoroughly mixed and then made into a mortar with gas tar. If the gas tar come from gas works where the ammoniacal liquor is not separated, it will be sufficiently mixed for the purpose; but if the latter be separated, and the tar be thick, it will set quicker if about one-fourth part of water be mixed thoroughly with the tar when used. For the floors of cow-sheds, this should be laid about three inches thick in one layer, on an even surface of gravel, or stone broken very small with a sprinkling of gravel over, and rolled down. The mortar may be laid on with a common shovel, and merely patted down flat. In dry, warm weather, if the mortar has been carefully made, the floor will set firm in a few days. For any ordinary out-house, half the thickness will make a permanent floor."

A WATER AND FIRE-PROOF CEMENT.—Water-proof cements for mending crockery, glass, etc., are not usually fire-proof; and fire-proof cements are not usually water-proof. The following, however, is said to be both:—Mix two ounces of milk with two ounces of vinegar. It will curdle. Separate the curd from the whey, and mix the latter thoroughly with the white of an egg; then add quick lime through a sieve until the mass is as thick as paste. The cement is then ready for use. A simpler cement or one more readily or easier made cannot be asked for.

DRIVING NAILS.—A Humoldt, (Kansas) paper says that city has the champion nailer in the world, in the person of Albert Minor, a lather by trade, and a son of Vermont. The paper adds that "Minor can drive more nails in one day than any other living man. He will drive nails faster than the fastest compositor can pick up type. He will drive sixty lathe nails a minute, ten hours out of the twenty-four, the year through, which would be 3,600 an hour, 36,000 a day, or 5,268,000 per day."

LIFE THOUGHTS.

HEAR as little as possible of whatever is to the prejudice of others.

BELIEVE nothing to the prejudice of others till you are absolutely forced to it.

NEVER drink in the spirit of one who circulates an ill report.

NATURE will always have her due; but whatsoever is beyond necessity is precarious and unnecessary.

ALWAYS believe that if the other side were heard, a very different account would be given of any matter.

MIND your business, and the public will commend you for so doing.

REMEMBER that drinking retards education, industry, and every branch of political and social improvement.

THE greatest pleasure I know is to do a good action by stealth and have it found out by accident.—*Lamb.*

No man will ever be poor who goes to himself for whatever he wants; and that is the readiest way to obtain riches, whether material or mental.

A FRIENDSHIP of interest cannot last longer than interest itself; and this is the reason why many in prosperity are to much followed, while he who is going down is without friends.

One Idea Men.

He who suffers himself to be wholly engrossed by one relation of life, soon ceases to be of value in any other. He loses the balance of character, and becomes one-sided and narrow minded. Business is naturally and rightly a means to many high and noble ends, and when thus followed it deserves all honor. But it is too frequently pursued as an end, and is to some the very essence of life itself. It takes the place of the very objects to promote which is its true destiny, and crowds them out by its own continual presence. He whose soul is always in his business grows unconsciously hard, cold and contracted in his views and feelings. His mind is closed against the light of truth, wisdom and intelligence; his heart is shut out from the warmth of domestic love and social sympathy. He pleads that he has no time for self-culture, for parental duties, for friendly intercourse, when the truth is that he ought to have no time for a business so engrossing as to crowd out these unmistakable duties. The truth is, that even business itself is better conducted by the man who resolutely lays it aside at regular intervals, and throws all his energies into other channels. The mind grows rusty by long confinement to one train of thought, and works less vigorously even on its favorite topic. Especially if one dwells much on the dark side of his affairs, and indulges in gloomy forebodings of ill, a weakness and timidity will ensue that will prevent the firm, prompt, energetic action which is so necessary to the successful prosecution of business. There is no doubt that many failures, and much of the ill success in the mercantile world, proceed from the pernicious habit of carrying the burden of business cares into hours from which they should be banished.—*Phila. Ledger.*

GREATNESS AND GOODNESS.—It is not possible for us to make our children great, but we can do much toward making them good. Great influences that we cannot understand, stretching over the whole span of our life, will make one man as great as a Mariposa redwood, and another as small as a dwarf-pear. Yet this, in its degree, shall be as good as that, while the sun will shine, and the rain fall, and the blessing of heaven rest on both. But the possibility is that the little one may become not only good, but great. Goodness of itself may be greatness, as it was in Washington and Lincoln; or there may be greatness without goodness, as the vast catalogue of mighty men who have been the scourge and curse of the race can testify.—*Robert Collyer.*

A DISTINCTION WITHOUT A DIFFERENCE.—When a rakish youth goes astray, friends gather to bring him back to the path of virtue. Gentleness and kindness are lavished upon him to bring him back to innocence and peace. No one would suspect he had ever sinned. But when a poor confiding girl has been betrayed, and receives the brand of society, and is henceforth driven from the ways of virtue, the betrayer is honored, respected and esteemed—there is no peace for her this side the grave. Society has no helping, loving hand for her, no voice of forgiveness. There are earthly moralities unknown to Heaven.

Business Cards.

A NEW PATENT.

If you want a superior set of **TEETH** on Gold, Rose-Pearl, or Pyroxaline, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

**JOSEPH GILLOTT'S
STEEL PENS.**
Sold by all Dealers throughout the World.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c., Orders left with C. W. WARR, 47 Clay Street, J. S. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

JOHN ROACH, Optician,
Has removed from 322 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

Farmers and Mechanics
BANK OF SAVINGS.

No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

**BARTLING & KIMBALL,
BOOK BINDERS.**
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO. 15v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

**J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,**
Brass and Steel Stamps and Dies. 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

CO-OPERATIVE UNION
Grocery and Provision Store
Removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-11

**L. SCHUMANN,
PIONEER**
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Bored and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

DR. F. HILLER,
[Homoeopathic Physician and Surgeon.]

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. m4-6m

E. J. FRASER, M. D.,
SURGEON,
No. 108 Stockton street, S. F., Cal.

Eastern Advertisements.

OWENS, LANE, DYER & CO.

MANUFACTURERS OF
The Eclipse Saw Mills,
Combining **THREE PATENTED** Improvements
Essential to The Well Working of Circular Mills.



**PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery.**
With the celebrated

STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo

Tubular Kerosene Lanterns.

We offer you this remarkable Lantern now for the third season. Its success has been UNPARALLELED, and is THOROUGHLY ESTABLISHED. Last year over Twelve Thousand Dozen were sold, and this year the Demand is much Earlier and Heavier. You cannot take hold of it too confidently, and you can warrant your customers that it is Unqualified.

For Whiteness and Brilliance of Flame,
Economy in the use of Oil,
Freedom from Smoke or Smell,
Reliability in Wind and Motion,
Coolness of Burner and Oil Cup, and
Impossibility of Heating or Explosion,

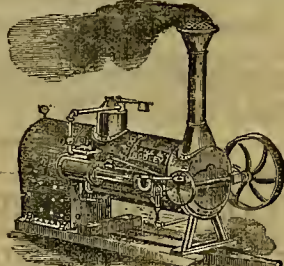
For the Variety of Places and Purposes to which it is adapted, the Readiness with which it Sells, and the
Complete Satisfaction it Gives
to all who use it.

It works on a New Principle, and has created an entire Revolution in Burning Kerosene. It has perfectly overcome the objections which render all other Kerosene Lanterns, so Disagreeable, Unreliable, Wasteful and Dangerous.

Please favor us with your orders PROMPTLY, and oblige

Chicago Manufacturing Company,
MANUFACTURERS OF
TUBULAR KEROSENE & CHAMPION RAILROAD
LANTERNS,
43 and 45 FRANKLIN STREET, CHICAGO.

An injunction has been issued by U. S. Court restraining parties from infringing our Tubular Patents. Will Dealers please take notice? m4-18-3m



LANE & BODLEY,
STATIONARY AND PORTABLE
STEAM ENGINES,
PREMIUM CIRCULAR SAW MILLS
—AND—
MILL MACHINERY.

PATENT INDEPENDENT AND SIMULTANEOUS
WROUGHT IRON HEAD BLOCKS,
Patent Lath Machinery,
SHINGLE MACHINES.
SAFETY POWER ELEVATOR.

LANE & BODLEY'S PATENT
POWER MORTISER,
BLANCHARD'S SPOKE LATHE,
Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery,
SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,
With Self-Lubricating Journal Boxes,
WE HAVE
Three Hundred Pulley Patterns

ONE HUNDRED HANGER PATTERNS,
OF UNIFORM STYLE AND WEIGHT.
Descriptive Circulars & Price Lists furnished on application to

LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.

FORSMAN
Iron-Old French
Burr-Stone Mills
Are the best for grinding or Planing.
Warranted to do more and better work with
the same power than any other.
We build com-
plete
MILLS including
all the latest
improvements
Send for Circular.
Stones 18, 24,
and 30 inches.
Weight, 450,
600, 1,000 and
1,500 pounds.
Sells all kinds of
MILL
FURNISH
ING.
J. A. FORSMAN, AGT.
89, 70 South Canal St.
CHICAGO, ILL.

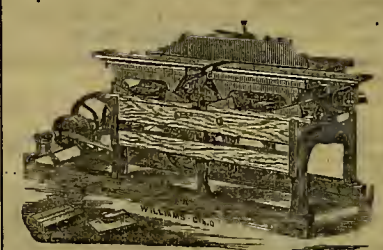
STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

**Hydraulic
ENGINEERS,**
Patentees
AND
Manufacturers
OF THE Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. m4-11-6m

Improved Universal Wood Worker



Jointing, Rabbling, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
m4-11-6m



**RUSS PATENT
MONITOR MOLDING MACHINE,**

MADE BY
R. BALL & CO., Worcester, Mass.,
Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implements, Furniture, Sash, Blind, and Door Facto-
ries, etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
m4-cowly

Phoenixville Bridge Works
OF PENNSYLVANIA.

CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
New Bridges, Viaducts, Roofs, Etc.

Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,
showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-ly

SAFES
BANK LOCKS. VAULT WORK.
HALL'S SAFE & LOCK CO.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

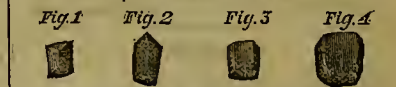
Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made
- 5th—Our Seven varieties of Combination Locks sur-
pass any Locks made in point of Finish, Security and
Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by ex-
perts without being opened.
- 7th—We will put from \$1,600 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the
Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improve-
ments, and consequently possess Superior Advantages,
in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati
Prices.
Send for Catalogue. m4-11-6m

DICKINSON'S
Patent Shaped Diamond Carbon-Points.

Diamond and Carbon, shaped or crude, furnished and
set for Dressing Mill-Burrs, Emery Wheels, Grindstones,
Conglomerate, Drilling Rock, Sawing or Working Stone,
Trueing up Hardened Steel, and for other mechanical
purposes. Also Glaziers' Diamonds. See Scientific
American, July 24th, Nov. 20th and 27th, 1869; Engi-
neering and Mining Journal, Jan. 17th, 1871; Journal of
the Franklin Institute, Philadelphia, June, 1870. For
Circulars descriptive, and Prices, send stamp to
ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

HIBBERD, SANBORN & CO.,



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from
the country promptly attended to. All kinds of Stair
Material furnished to order. Wood and Ivory Turners.
Billiard Balls and Ten Pins. Fancy Newels and Balu-
sters. 21v22-6m.

YOUNG LADIES' SEMINARY,
BENICIA.

The Twentieth Annual Session of this well known
institution will commence on the
26th day of July Next.

Previous to that date there will be a complete renova-
tion of the establishment. A fine School Room and
many other improvements will be added, and new furni-
ture, carpets, bedding and apparatus supplied.
The course of study and mode of instruction will be
such as the best modern culture demands; and in every
genuine advantage of school and home, the institution
will prove its claim to a place in the first rank.
For particulars address
19v1-1mh

REV. O. H. POPE, Benicia, Cal.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday excepted	Express Train Daily.	MAY 1, 1871.	Express Train Daily.	Passenger Sunday excepted
4:00 P.M.	8:00 A.M.	San Francisco.	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.	5:12 P.M.	11:58 P.M.
5:30 P.M.	9:30 A.M.	San Jose.	5:30 P.M.	12:15 P.M.
7:38 P.M.	12:15 P.M.	Stockton.	1:43 P.M.	5:35 P.M.
8:35 P.M.	2:00 P.M.	Sacramento.	11:43 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.	5:10 A.M.	
	5:00 P.M.	Seama.	4:30 A.M.	
	2:30 P.M.	Sacramento.	11:45 A.M.	
	5:25 P.M.	Colfax.	8:45 A.M.	
	1:15 A.M.	Reno.	1:00 A.M.	
	9:10 A.M.	Winnemucca.	4:05 A.M.	
	12:00 M.	Battle Mountain.	1:25 P.M.	
	4:40 P.M.	Elko.	8:45 A.M.	
	6:10 A.M.	Ogden.	6:15 P.M.	

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 9:10 a. m. daily (except Sundays), and 3 p. m. daily. Returning leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily (except Sundays).

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, *6:50, 8:00, 9:10, 10:20 and 11:10 a. m. 12:00, 1:30, 4:00, 5:15, 6:30, 8:30 and *11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).

LEAVE BROOKLYN, *5:15, *6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.

LEAVE OAKLAND, *5:25, *6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only).

LEAVE HAYWARD, *4:30, 7:00 and 10:45 a. m., and 3:30 p. m.

LEAVE FRUIT VALE, *5:25, 7:55, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

*Trains do not run Sundays.

T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

Pittsburgh, Fort Wayne and Chicago R. R.

61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York
WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers
will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York without charge.

Through Tickets via, this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.

T. L. KIMBALL, Gen'l. West. Pass. Agt.
Chicago, Ill.
J. R. FRINGER, Jr., Travelling Agent,
422-ly San Francisco, Cal.

Yosemite

— AND —

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

O. P. R. R. Office, 422 California Street.
C. & N. W. Ry. Office, 445 California Street.
C. B. & M. R. R. Office, 214 Montgomery Street.
O. R. I. & P. R. Office, 208 Montgomery Street.
K. O. St. J. & O. B. R. Office, 306 Montgomery Street.

The California Powder Works

No. 314 CALIFORNIA STREET.
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,
And BLASTING
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

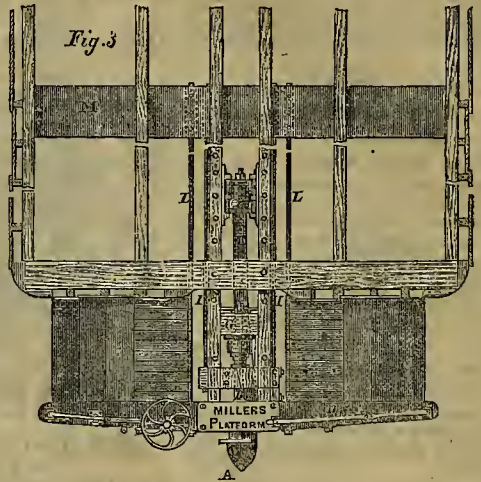
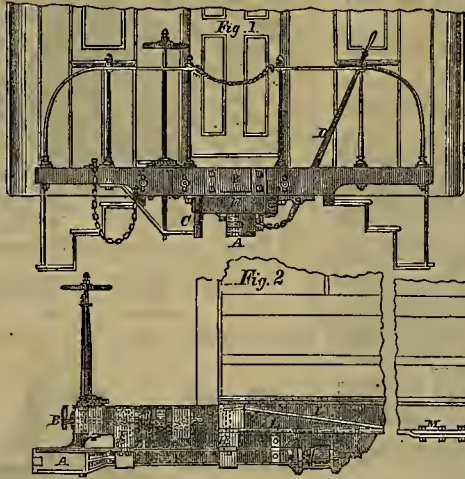
HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

MILLER'S TRUSSED PLATFORMS,
COMPRESSION BUFFERS AND AUTOMATIC COUPLERS, FOR RAILROAD CARS.



PATENTED MARCH 31, 1863, JANUARY 31, 1865, AND JULY 24, 1866.

Office—No. 231 Broadway, Rooms 4 and 5, opposite City Hall Park, New York.

The advantages gained by the use of these improvements may be briefly stated as follows:

- 1st. The platforms are held in a plane with the sills on the cars.
- 2d. The platforms cannot be broken by any ordinary accident.
- 3d. Telescoping is impossible.
- 4th. Any required compression may be attained, to prevent accidents by oscillation.
- 5th. No links and Pins are required, and no one is required to go between cars to couple them.
- 6th. The platforms may be held as close together as desired.
- 7th. By close coupling the train is shortened.
- 8th. They will not accidentally uncouple.

No Railroad Manager who comprehends the case fails to give these improvements a "trial," and all those who have tried them have adopted them.

- 9th. They may be uncoupled "without shutting off," to make a flying switch.
- 10th. They are strong; the train will not "break in two" at starting or while running.
- 11th. They cause the train to move steadily and not jerk in starting or stopping.
- 12th. They work well at great variations of height.
- 13th. They will couple with all kinds of "drawheads" and "couplers."
- 14th. They are cheap and durable.
- 15th. Injury to men when coupling cars is entirely prevented.

- 16th. Injury to persons by falling between cars is entirely prevented.
- 17th. Injury to persons and to cars by "telescoping" is entirely prevented.
- 18th. Injury to persons and to cars by "oscillation" is entirely prevented.
- 19th. The great steadiness of the cars, produced by compression, renders sleeping cars much more desirable.
- 20th. "Train Brakes" are rendered more valuable by the non-existence of "slack" in the train.

Prices of Materials, Etc.

Coupling Hooks.....	\$24 50 each.
Buffers.....	11 00 each.
Levers.....	2 00 each.

Patterns in Full Sets, or Single Pieces, for all castings used in the Improvements; and Templets, for Wrought Irons, AT COST. Drawings, Tracings, and superintendence of work are not charged for.

These articles will be promptly furnished and shipped to any part of the country on short notice. Orders must state what routes the goods are to go, and whether by express or as ordinary freight.

23v22tf

E. MILLER.

Marcelina Silver Mining Company.—Location of Works, Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 2d day of June, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, Room 21, Hayward's Building, 419 California Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, Aug. 1st, 1871, to pay the delinquent assessment, together with cost of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building 419 California Street, San Francisco, Cal.

Mina Rica Mining Company—Location of Works, Auburn Mining District, Placer County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, made on the 26th day of April, 1871, so many shares of said stock as may be necessary will be sold by public auction, at the office of the company, No. 413 California street, Room No. 2, third floor, San Francisco, Cal., on Tuesday, June 20th, 1871, at 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

Office, No. 413 California street, Room No. 2, third floor, San Francisco, Cal.
jun3-3t

Taylor Mill and Mining Company.—Location of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of May, 1871, an assessment of ten (10) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 4th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.
SAML S. MURPHY, Secretary.
Office, 521 Montgomery street, over Sather & Co's Bank San Francisco, Cal.
jun10-4w

SUBSCRIBERS OF THE "PRESS,"

Who desire Paul's New Pamphlet, "Wastage of Precious Metals—Wet and Dry Workings of Ores—Electric Settlers—Pulverizing Barrels," Etc., Can have the same free of expense by forwarding address to

ALMARIN B. PAUL,
206 Front Street, San Francisco.
jun3-2w

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTERS AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,

MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

CAST IRON PIPE,
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now being made at the

PACIFIC IRON WORKS,

In this city, under the Patents of Farrar & Whiting.

23v22-3m GODDARD & CO.

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsule are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

MANUFACTURERS:—1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE,
112 and 114 California street, San Francisco.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.
A. G. STILES, President,
B. ROTHSCHILD, Secretary. 20v17

A FLORENCE SEWING MACHINE, hut slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office,
apl-bp-tf

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company—Location

of Works, Grass Valley, Nevada County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the twenty-third day of May, 1871, an assessment of (2) of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 23 Merchants' Exchange, San Francisco.
Any stock upon which said assessment shall remain unpaid on Monday, the twenty-sixth day of June, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventeenth day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees. DAVID WILDER, Secretary.
Office, No. 23 Merchants' Exchange, California street, San Francisco, Cal. 21v22-1m

Altona Number One Gravel Mining Company, Alta Hill, Grass Valley, Cal.

The first annual meeting of the stockholders in the above named Company will be held at their office, No. 23 Merchants' Exchange, San Francisco, on Thursday, July 6th, 1871, at 2 o'clock P. M., for the election of Trustees, and the transaction of other business. By order of the President. DAVID WILDER, Secretary.
June 5-5v

Hanscom Copper Mining Company.—Location

Low Divide District, Del Norte County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of April, 1871, an assessment of five (5) cents per share was levied upon the capital stock of said company, payable on and after the 15th day of May, at the Secretary's office, 21 and 23 First Street, Office Golden State Iron Works, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 10th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of June, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. JAMES BIDDLEFLO, Secretary.
Office Golden State Iron Works No. 21 and 23 First St. San Francisco, Cal. 18v22

Kincaid Flat Mining Company—Location

of Works, Tuolumne County, State of California.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows:
Names. No. Certificate. No. Shares. Am't.
S. Card.....10 10 \$25 00
S. Card.....39 5 12 50
James Nelson.....31 10 25 00
James Nelson.....32 10 25 00
Wm. H. Sharp.....35 10 25 00
Wm. H. Sharp.....36 10 25 00
N. Gardner.....104 5 12 50
And in accordance with law, and an order of the Board of Trustees, made on the 28th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Kincaid Flat Mining Company, 224 Clay street, San Francisco, Cal., on the 1st day of July, 1871, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
N. C. PASSETT, Secretary pro tem.
Office, 220 Clay street, San Francisco, Cal. Jun10-4w

Latawana Mining Company, near Hamilton

City, White Pine, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, 614 Merchant street, Room 26, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 22d day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees. A. MARTIN, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, California. 20v22-4w

Mauntau Silver Mining Company—

Location of works, White Pine District, State of Nevada.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 24th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows:
Names. No. Certificate. No. Shares. Amount.
B. O. Hodge.....18 1000 \$60 00
B. O. Hodge.....31 50 2 50
B. O. Hodge.....33 20 1 00
B. O. Hodge.....61 200 10 00
B. O. Hodge.....62 250 12 50
B. O. Hodge.....64 600 30 00
Washington Ayer.....23 100 5 00
Justus Struver.....26 150 7 50
Justus Struver.....27 180 9 00
George Hearst.....32 100 5 00
Wm. M. Hayne.....39 325 16 25
Wm. M. Hayne.....40 500 25 00
Wm. M. Hayne.....41 500 25 00
Wm. M. Hayne.....42 500 25 00
Wm. M. Hayne.....43 500 25 00
Wm. M. Hayne.....44 250 12 50
Wm. M. Hayne.....45 250 12 50
Wm. M. Hayne.....46 100 5 00
Wm. M. Hayne.....47 50 2 50
Wm. M. Hayne.....48 50 2 50
Wm. M. Hayne.....49 50 2 50
Wm. M. Hayne.....50 1000 50 00
Wm. M. Hayne.....51 1084 54 20
Mrs. A. F. Black.....57 450 22 50
Mrs. A. F. Black.....58 2000 100 00
Mrs. O. J. Perman.....63 560 28 25
Richard Colburn.....60 800 40 00
E. J. Ryan.....65 106 5 30
J. M. Buffington.....66 50 2 50
J. M. Buffington.....67 50 2 50
J. M. Buffington.....68 1700 85 00
J. M. Buffington.....69 400 20 00
Henry L. Davis.....70 750 37 50
And in accordance with law, and an order of the Board of Trustees, made on the 24th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, 37 New Merchants' Exchange, California street, San Francisco, on the 19th day of June, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants' Exchange, California street, San Francisco, Cal. Jun3-3t

Mohawk & Montreal Cons. G. & S. M.

Co., Meadow Lake, Nevada County, State of California.
Notice.—A special meeting of the stockholders of the above named company for the purpose of electing Trustees and such other business as may properly be brought before the meeting, will be held on Tuesday, the 27th day of June, 1871, at 3 o'clock P. M., at the office of R. Wegener, No. 414 California street, San Francisco, Cal.
JERRY WHELEN, } Trustees.
P. G. YENARA, }

BERRY & PLACE,
Importers and Dealers in
MACHINERY AND SUPPLIES.

SAN FRANCISCO, CAL.

Sole Agents in Pacific States for Sale of

Blake's Patent Steam Pumps,
Smith's Wood-Working Machinery,
Davis & Furber's Woolen Machinery,
The Swain Turbine Water Wheel,
Wood, Light & Co.'s Machinists' Tools,
Sturtevant's Pressure Blowers,
Hardy's Portable Drillers,
Dreyfus' Patent Self-Oilers,
Gardner's Safety Stop Governor,
Page's Belting, Etc., Etc.

We keep in stock the above, with a large variety of other Machinery and Small Tools.

Dreyfus' Patent Self-Oilers and Cylinder Cups.

A saving in oil of 75 to 95 per cent. guaranteed. No trouble of "oiling up!" No waste of oil! No oil cans needed!

by the use of the

NATHAN & DREYFUS
SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transparent Glass Cap, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'. Send for Circular and Price List to BERRY & PLACE, San Francisco.

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus

fully warrant the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK OR FINISH, as you may require. Send for Price List to BERRY & PLACE, San Francisco.

Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages: First—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind. Second—Its great economy of both tallow and fuel. Third—It is self acting, and supplies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

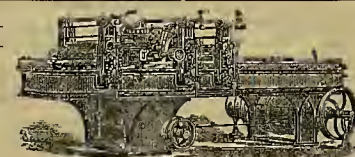
The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, and other crude contrivances, and allowing it to be in-tantly blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information, or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warcoroma, 112 and 114 California street, San Francisco.

WOODWORTH

PLANERS.



PLANERS AND MATCHERS,

With Patent Expansion Feed Gears and other Improvements. Also, every description of the most improved

Patent Wood-Working Machinery,
Embracing Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machines, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arrows, Knife Grinders, Moulding Heads, Mortising Chisels, Matcher Sets, Band-Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sole Leather, Belt Studs, etc., for sale at Eastern Prices, at the Machinery Depot of

21v22-4f

BERRY & PLACE, 112 and 114 California St., San Francisco.

Nevada Land and Mining Company.—Lo-

cation of works, Steptoe, Johnson & Latham, Autolope and Clifton Districts, Elko County, State of Nevada.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 8th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:
Names. No. Certificate. No. Shares. Am't.
Henry R. Miller.....unissued. 2,000 \$80 00
H. C. Kibbe.....unissued. 2,000 80 00
Washington Meeks.....unissued. 2,000 80 00

And in accordance with law and an order of the Board of Trustees, made on the 8th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 3d day of July, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. 23v22-1w

Ophir Copper, Silver and Gold Mining Company—Location of Works, Ophir, Placer County,

California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 30th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. B. WINGARD, Secretary.
Office, No. 314 California street, San Francisco, Cal. 23v22-4w

Office of Silver Sprout Mining Company,

236 Front street, San Francisco, May 23, 1871.—Stockholders' meeting.
Notice is hereby given, that the annual meeting of the stockholders in the above named company, will be held at the office of the company, No. 236 Front street, San Francisco, on Tuesday, June 27th, 1871, at the hour of 12 o'clock noon.
T. B. WINGARD, Secretary.

Pinto Mining Company, Location of Works,

Silmaro, Pinto Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of May, 1871, an assessment of twelve and a half cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, D. B. Arrowsmith, 426 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 26th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery street, San Francisco.

Sierra Iron Company—Location of Works,

Sierra and Plumas Counties, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 17th day of May, 1871, an assessment of Sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold or silver coin, to the Secretary, at the office of the Company, No. 428 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 26th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 20th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. CALEB T. FAY, Secretary.
Office, Room No. 7, 428 California street, San Francisco. 20v22-4w

Stockholders' Meeting—Office of the

Rogers Silver Mining Company, San Francisco, May 10th, 1871. In accordance with a resolution adopted at a meeting of the Trustees of the Rogers Silver Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company No. 6 Montgomery street, San Francisco, California, on Tuesday, the 20th day of June, A. D. 1871, at 11 o'clock A. M., to take into consideration, and decide upon the proposition to increase the capital stock of said company from nine hundred thousand dollars, divided into three thousand shares of three hundred dollars each, the present capital of the company, to fifteen hundred thousand dollars, to be divided into fifteen thousand shares of one hundred dollars each.

GEO. S. MANN, }
JOHN BARTON, } Trustees.
G. D. WYMAN, }
R. PERRY, }

19v22-4w

Salamander Gold and Silver Mining

Company, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 4th day of May, 1871, an assessment of Twenty (20) cents per share was levied upon the assessable stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, at the office, No. 210 Post street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 10th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco. 19v22-4w

Yosemite Consolidated Mining Company—

Location of Works, Santa Fe District, Lander County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 4) levied on the twelfth day of April, 1871, the several sums set opposite the names of the respective shareholders, as follows:
Names. No. of Certif. No. Shares. Amount.
Brandow, Peter.....23 34 \$ 5 00
Brandow, Peter.....157 20 20 00
Brandow, Peter.....157 25 25 00
Brandow, Peter.....163 60 60 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 327 Montgomery street, San Francisco, Cal., on Monday, the 19th day of June, 1871, at the hour of 12 o'clock noon of said day, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale.
DAVID WILDER, Secretary.
Office, No. 28 Merchants' Exchange, California street San Francisco, California. 22v22-3w

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES.

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tebama and Fremont streets, above Howard street, San Francisco. 3-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

16v20-3m GODDARD & CO.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Quabur's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

THE

ASPHALTUM PRESSURE PIPE
COMPANY,HAVING ERECTED A MANUFACTORY
of sufficient capacity to supply their Asphaltum Pipe in large quantities.

Are now Prepared to Take Orders

AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.

Circulars sent on application. 16v21-tf

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles

and Frames

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron. 9v143m

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,

San Francisco.

4v21-ly

NORTH-WESTERN MANUFACTURING COMPANY,

Jefferson Street, bet., Lake and Randolph, Chicago, Ill.



MANUFACTURERS OF

STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,

Brass and Iron Goods for Steam and Gas Fitters and Engine Builders

Cast Iron and Malleable Iron Fittings and Castings.

Steam Warming and Ventilating apparatus for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

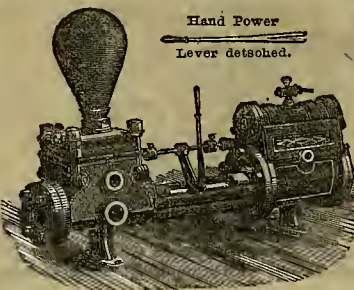
R. T. CRANE, Prest.

C. S. CRANE, Vice Prest.

S. W. ADAMS, Sec'y.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroad and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them: we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by BERRY & PLACE, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



Hand Power

Lever detached.

N. P. Langland,
STAIR BUILDER,455 and 457 Brannan street,
SAN FRANCISCO.

16v16-ly

Rails, Newel Posts,

AND BALUSTERS,
Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit by simply sending a correct ground plan of stairs, together with height of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed. Spanish Cedar, Walnut and California Laurel always on hand.

CAMERON'S

STEAM PUMPS.

PICHLING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

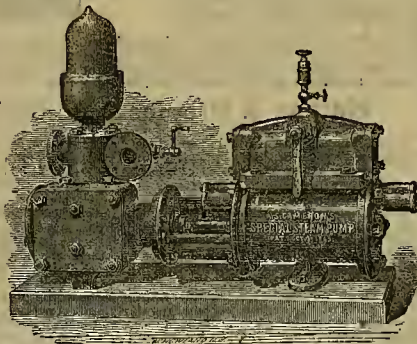
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



CALIFORNIA BRASS FOUNDRY, California File Manuf'g Co.

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

J. H. WEED

V. KINGWELL

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco. 20v20-3m

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE.

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also, MORSE'S TWIST DRILLS, AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,

Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

WM. H. TAYLOR.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary. 24v17-qy

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco. 10v14qr

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco

2v21-tf

Machinery.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

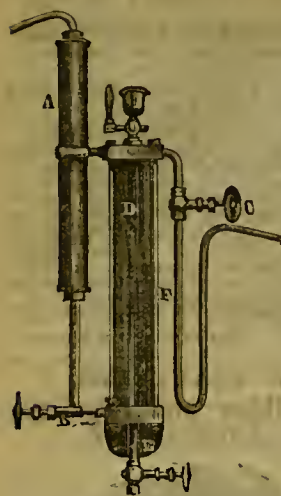
This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and sellers for themselves, at the office, 239 Fremont Street, San Francisco.

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. F is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and O.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN H. WILSON,
San Francisco.



STURTEVANT'S

PRESSURE

BLOWER.

Are for sale by

Berry & Place,

112 California st.,
San Francisco,

who have the different
sized always in
store. 4v22

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,
36 Bond street, New York.

Platinum Scrap and Ore purchased. 22v18t

FAIRMOUNT MACHINE WORKS, 2106 WOOD STREET,

Power Loom Works, N. W. Cor. Hamilton and 21st Streets,

PHILADELPHIA, PENN.

THOMAS WOOD,

MANUFACTURER OF

POWER LOOMS,

Spooling, Winding, Beaming, Dyeing and Sizing Machines,

ALSO SELF-ACTING

WOOL SCOURING MACHINES.

Plans taken and Factories fitted out complete with

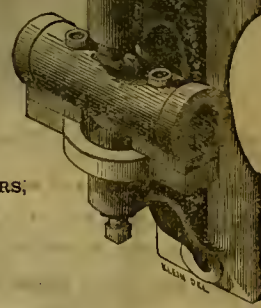
SHAFTING AND GEARING,

PULLEYS, COUPLINGS AND SELF-OILING HANGERS,
ADJUSTABLE OR RIGID BEARINGS
ALWAYS ON HAND.



ADJUSTABLE SELF-OILING HANGER.

Adjustable Self
Oiling Post Bracket,
six inches
from Post
to centre
of Shaft.



STEAM JET PUMP.

Blakeslee & Williams' Patent—For
Water, Oils, Acids, Etc.



The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start, it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,

Southeast cor. Tenth & K Streets, Sacramento City Cal.

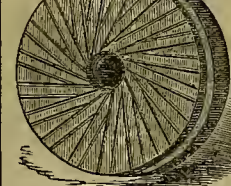
AGENTS—CHAS. F. BUCK, 117 California st., San Francisco; KEOP & BARON, Stockton. 27 Can be seen at

McAFEE, SPENS & Co's. Boiler Works, S. F. 21v21-1f

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,



Celebrated Dutch Anchor brand Boiling Cloths; Spout Machine; Bran Dusters; Mill Picks; Mill Stones; Portable Mills of all sizes, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz. 2v22-1yins

41 First st., San Francisco.

The Patent Wood Horse Collar

AND HAME COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never SWEATS or CALLS the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sorest Shoulders

In Three Weeks, Working Every Day.

For further particulars as to price of Collars, etc., apply to or address WILDMAN & MARBLE, No. 30 California Street, San Francisco, Proprietors for the Pacific Coast. 19v22-2m

Agents Wanted.

AHEAD OF THE WORLD.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

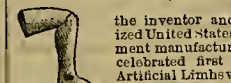
With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best, Consequently the most Popular Machine in use. The Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,
ap15-3m No. 113 Kearny street, San Francisco.

ARTIFICIAL LIMBS.

A. A. MARKS, No. 575 Broadway, N. Y. City,



the inventor and authorized United States Government manufacturer of the celebrated first premium Artificial Limbs with Rubber Hands and Feet, has published a new and enlarged edition of his Illustrated Pamphlet, of importance to all who have suffered amputations, especially to officers and soldiers who lost their limbs in service. Copies sent free to applicants. 21v1-13ts-12tr

Metallurgy and Ores.

CALIFORNIA ASSAY OFFICE

No. 512 CALIFORNIA STREET.

One Door West of Montgomery.....SAN FRANCISCO.

J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, etc. 10v22

O. W. STRONG.

W. L. STRONG.

G. W. STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22-1f

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc. One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS,

4v16-3m

F. MORRIS,

Practical Assayer and Metallurgist,

Nos. 30 and 36 Fremont street,

SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 19v22-3m

Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,600 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical

CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL.

7v21-3tr

NEVADA METALLURGICAL WORKS

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

Miscellaneous.

7-30 GOLD LOAN

OF THE

Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July last) is being pushed forward with great energy from both extremities of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 265 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September next this will be increased to at least 560 miles.

A GOOD INVESTMENT. We are now selling, and unhesitatingly recommend, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear seven and three-tenths per cent. gold interest (more than 8 percent. currency), and are secured by first and only mortgage on the ENTIRE ROAD AND ITS EQUIPMENTS, and also on

23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to their character as a first-class, prompt-paying Rail road security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.

SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed. The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their ample security and high rate of interest there is no investment accessible to the people, which is more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 6 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.

OTHER SECURITIES—AGENCIES. All marketable Stocks and Bonds will be received at their highest current price in exchange for Northern Pacific Seven-Thirties. EXPRESS CHARGES on Money or Bonds received, and on Seven-Thirties sent in return, will be paid by the Financial Agents. AGENCIES for the sale of this loan are established in nearly every city and important town throughout the United States and Canada. Full information, maps, pamphlets, etc., can be obtained on application at any agency, or from the undersigned.

For Sale by

JAY COOKE & CO.,

Philadelphia, New York and Washington, Financial Agents Northern Pacific Railroad Co. By Banks and Bankers generally throughout the country. mar25-13t-cow



The "PAIN KILLER" may justly be styled the great medicine of the world; for there is no region of the globe into which it has not found its way, and been largely used and highly prized. Moreover, there is no claim to which it has not proved to be well adapted for the cure of a considerable variety of diseases; it is a speedy and safe remedy for Burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, it is admirably suited for every race of men on the face of the globe.

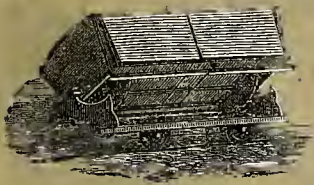
It is a very significant fact, that notwithstanding the long period of years that the "Pain Killer" has been before the world, it has never lost a whit of its popularity; but on the contrary, the call for it has steadily increased from its first discovery, and at no previous time has the demand for it been so great, or the quantity made been so large, as it is to-day.

Another significant fact is, that nowhere has the Pain Killer ever been in higher repute, or been more generally used by families and individuals, than it has been here at home, where it was first discovered and introduced. That the Pain Killer will continue to be what we have styled it, THE GREAT MEDICINE OF THE WORLD, there cannot be the shadow of a doubt.—Providence Advertiser.

Peteler Portable Railroad Co.,

OFFICE, 42 BROADWAY, NEW YORK.

TO CONTRACTORS, MINERS, ETC.



By this invention, one man, with one horse and five cars, does the work of ten men, ten horses and ten carts.

Highly Approved by all who Use Them.

CARS AND TRACKS FOR SALE OR TO LET

Samples at the office. Illustrated Circulars free.

State and County Rights for Sale.

23v22cow26t

Pacific
Insurance Company,
No. 422 California St.,
San Francisco
Cash Assets \$1750,000.
Fire
and *Marine*
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary
A. BAIRD, Marine Secretary.

THE OFFICE OF
"THE BUREAU OF MINES"
AND
Mining Statistics of the Pacific Coast
IS LOCATED FOR THE PRESENT AT
No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the
Registry of Mines.

Parties desiring to communicate by letter, will obtain
Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,
Secretary of "Mining Bureau Pacific Coast,"
San Francisco, Cal.,
Care of Lock Box 406.

22v-18-1f

Manganese ! Manganese !

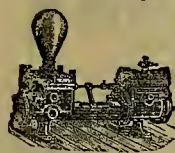
We have on hand the Best and Purest
article of Powdered Black Oxide of Mangan-
ese ever sold on this coast. Price, Sixty
Dollars a Ton.

We also offer to consumers

**Acids, Sulphate of Copper,
CYANIDE OF POTASS,**
And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,
Corner First and Market Streets, San Francisco.
22v-17-3m

The Angel's Quartz Mine

Shaft is over 400 Feet Deep,
and is kept free from water
in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
112 California st., San Fran-
cisco. 4v22

O. J. KINO, B. KIMBALL, P. D. CODE,
P. D. CODE & CO.,
MANUFACTURERS OF

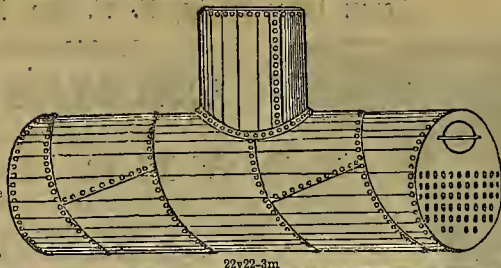
JELLIES, JAMS, PRESERVES, PICKLES,

KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,
Between Jackson and Pacific, San Francisco, [16p]

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.
F. L. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low
Pressure
BOILERS
of all descriptions.
SOLE
Manufacturers of the
CELEBRATED
SPIRAL BOILER.



Sheet Iron Work
of every
DESCRIPTION
done at the
Shortest Notice.
All kinds of
JOBING
and
Repairing
Promptly Attended
to.

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER,

Somewhat slower in its Explosion, which we recommend for

BLANK BLASTING, COAL MINES,

AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.
It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

Price. 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

BANDMANN, NELSEN & CO.,
General Agents, No. 210 Front Street.

20v22-3m16p

For Steam Pipes & Boilers **Hair Felting**

For sale by BERRY & PLACE, Machinery Depot, 112 Cal-
ifornia street, San Francisco.

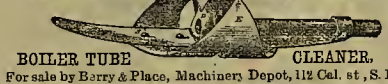
Leather Belting,
Boiler Felt,
Belt Straps,
Steam Packing,
Self Chews,
Linen Hose,
Tub Scrapers,
Lace Leather,
Planing Mill
and Engineer's
Supplies, Etc.,

Page's **Belting**
Patent-Tanned
Leather



For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Sturtevant's **BLOWERS**
Pressure
MORSE'S PATENT.



BOILER TUBE CLEANER.
For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.
Blake's **PUMPS**
Patent
Steam

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF

THE MECHANICS' INSTITUTE,

San Francisco,

WILL OPEN

Tuesday, August 10, 1871,

And continue for four weeks, in the Pavilion
of the Society, on Union Square, in
the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of
the Mechanics' Institute any day, between the hours of
1 and 9 P. M., or by letter to the Corresponding Secre-
tary, H. C. KIRNE.
Mr. J. H. GILMORE is authorized to visit those who
intend to exhibit from this city. fel8-16p-1f

VENEER
CUTTING MACHINE

FOR SALE.

The largest and finest in this country, together with
pulleys, belts, shafting, etc., all in perfect order.
Extreme length of cut.....11 feet 2 inches
Extreme width of cut.....29 1/2 inches
Thickness of log.....27 inches
Capacity, 50,000 feet per day, from 7 to 250 veneers to
the inch

For further particulars apply to
22v22-1m R. H. GALPEN, No. 2 Post street.

Hubbard, Lippincott, Bakewell & Co.,

MANUFACTURERS

J. E. Emerson's New Patent Flange Toothed Circle
Saws, are superceding all others.

Grosby's Patent Gang Saw Buckle; Lippincott
Tullie's Patent Cross Cut Saws; Davis' Patent Double
Cut Gang Saws (cuts both ways); and all of the cele-
brated brands of SAWS formerly manufactured by both
Hubbard Bro. & Co. and Lippincott & Co.
Also, SHOVELS, AXES AND SPADES.

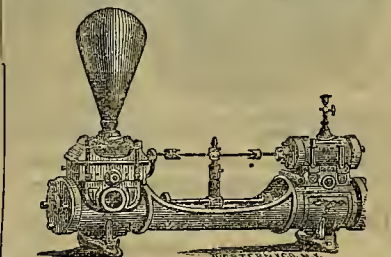
All orders from the Pacific Coast will receive special
attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods
at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPINCOTT, BAKEWELL & CO.,
mail-16p-1f Pittsburgh, Pa.

A. L. FISH, Agent,
KNOWLE'S PATENT STEAM PUMPS.



Knowles' Steam Pump,
At the Monte Cristo Mining Co.'s Works, in Sierra
County, is raising water higher than any other
Steam Pump on the Pacific Coast.
All kinds new and second-hand Machinery in stock
and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

STOP PAYING RENT.

**San Francisco Co-operative Land and
BUILDING ASSOCIATION,**

Incorporated March 20, 1871, on the plan of the Eastern
Building Associations.

MONTHLY INSTALLMENTS.....\$1.00

PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be
obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-
President; E. C. MORTON, Treasurer; H. B. CONG-
DON, Secretary. apl-3m.

J. O. CALDWELL, President. REESE LLEWELLYN,
Superintendent.

COLUMBIA
Co-operative Foundry Company,
(INCORPORATED MARCH 16, 1871),
133 and 135 Beal Street, between Mission and Howard,
SAN FRANCISCO.

Manufacturers of
MACHINERY AND CASTINGS
of every description.

Particular attention given to Castings for Mills and
House Fronts. All Work done at the Lowest Price and
Shortest Notice. 23v22-3m

W. T. GARRATT & CO.
CITY

Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints; Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Gloves, Steam Whistles, HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes,
Particular attention paid to Distillery Work, Manufac-
ture of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP-
PER AND BRASS. 6-1f
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont Street, near Market,
MANUFACTURER OF

SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economi-
cal Saws in the World.

Each Saw is Warranted in every respect;
Particular attention paid to construction of
Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

RIDER'S
Automatic Cut-off
Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are sim-
ple, compact and durable,
and in point of economy
of fuel and space are ex-
celled by none, and are
cheaper than any other
first-class cut-off Engines
in the market. Descrip-
tive pamphlets and price
lists mailed free on appli-
cation to the proprietors,
HENDREN & RIPLEY,
Corner Albany and Wash-
ington Sts., New York.
26v20-1y16p

BAIRD'S
BOOKS
FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTI-
CAL AND SCIENTIFIC BOOKS, complete to April 16,
1871, 94 pages, 8 vo., will be sent, free of postage, to any
one who will favor me with his address.

HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

MAGAZINES.	P. An.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansome and
New York Ledger.....		Washington streets,
Blackwood.....	3 00	SUPPLIES ALL
Hours at Home.....		Eastern Periodicals,
Good Words.....		BY THE
Peterson's.....	5 00	Year, Month, or Number.
Arthur.....		
Lady's Friend.....	5 00	
Harper's Weekly.....	5 00	
Chimney Corner.....	5 00	
Literary Album.....	5 00	
London Society.....	5 00	
All the Year Round.....	15 00	
London Ill. News.....	15 00	

PATENT BROKERS.—Inventors having valuable patents
and needing reliable assistance in selling them should
consult WESTER & CO., No 17, New Montgomery street,
under the Grand Hotel, San Francisco.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 17, 1871.

VOLUME XXII.
Number 24.

American Locomotive Engines.

The first locomotives made in the United States, were the Phoenix and the West Point, we are told, which were built at the West Point foundry, in 1830, for the South Carolina Railroad; and the third, the De Witt Clinton, for the Mohawk and Hudson Railroad, was completed in the spring of 1831. Two had been imported from England, one, in 1828, for the Carbondale and Honesdale Railroad in Pennsylvania, and another for the Mohawk and Hudson Road, in 1830. The fourth American-made locomotive was a miniature one, which, on April 25th, 1831, was set in motion on a track laid in the rooms of Peale's Museum, in Philadelphia, drawing two cars with seats for four persons. This little engine, which amused crowds of people, was the invention and work of Mr. Matthias W. Baldwin, a skillful and enterprising mechanic of Philadelphia.

Only a few years previous to these dates, the impossibility of economically propelling boats and carriages by steam had been clearly demonstrated to the satisfaction of learned societies, and the advocates of steam as a motive power had been heartily ridiculed. But Robert Fulton made a successful trip in his steamboat, the Clermont, on the Hudson River, in 1807, and, at the dates mentioned above, stationary engines had been in use in many parts of the United States. Still a locomotive engine was quite a curiosity.

In 1832, Mr. Baldwin received an order to build a locomotive for the Germantown Railroad company. This was a formidable undertaking. It is said that only one mechanic in America had yet succeeded in erecting a locomotive which would draw more than its own weight on a horizontal track. In the manufacturing city of Philadelphia only five mechanics could be found who could do any part of the work on a locomotive. No blacksmith could weld a bar of iron over 1½ inches thick, and no forge in the State could weld a tire, 5x1½ inches.

There was a dearth of tools. There were

no planing or slotting machines. The only contrivance for boring out a cylinder was a chisel fixed in a round stick of wood, turned by means of a crank worked by hand. Yet tools and patterns were made, and in six months, in November, the Ironsides was placed on the road.

But how queer that locomotive was in many respects. For instance, here is the advertisement concerning its work. "Notice.—The engine (built by Mr. Baldwin), with a train of cars will run daily when the weather is fair. * * * When the weather is not fair the horses will draw the cars." Engines were then hosed in wet weather, and horses rested on clear days.

with machines of endless number and variety.

Of the details of this huge establishment, which turned out, 1869, work of the value of nearly three and a half millions dollars, we have no space to speak. But the Baldwin engines are heard of everywhere,—in Germany, Cuba, Brazil, Peru, Canada—notwithstanding the competition of English manufactures, aided by cheap material and cheap labor. And with all the amount of work, so exact is everything conducted, and with such system, that if an engineer in Oregon should telegraph on that the piston-rod or cross-head of locomotive No. 2,300 was broken, a dupli-

put in and the flow has been regular from that time in quantity sufficient to furnish fuel for a large manufacturing establishment.

At the gas house the natural gas did the work of the ordinary fuel for the furnaces, small quantities of coke being supplied in addition now and then. In the retort house its illuminating powers were tested through about twenty pipes. It did not work well through the ordinary burners; but these being removed and full vent allowed to it, it gave all the light necessary; though a clear, steady light is not essential for the work to be done there. The light is not bright and clear like that of coal gas, and showed a liability to disturbance by the action of the atmosphere.

The company intend to have the value of the gas thoroughly tested, and have engaged the services of Prof. Hadley to make a scientific investigation of the matter. The subterranean gas is found all the way from Buffalo to Cleveland.

At Painesville, Ohio, between Erie and Cleveland, a well 550 feet deep is yielding an enormous volume of gas. This well is located about two miles from the Lake.



THE BALDWIN LOCOMOTIVE WORKS, PHILADELPHIA, PA.

But the Ironsides established the reputation of its builder. Before the close of 1834, he had completed five engines. And the business grew ever until the Baldwin Locomotive Works were able to claim to be the most extensive locomotive establishment in the world, and from the capacity of two small engines in a year, attained the capacity of one a day, or over three hundred men make a locomotive engine in a day,—boiler, cylinders, frame, driving wheels, truck, stack, cab, pilot and tender complete,—with the speed of forty miles an hour, and the power of a thousand tons.

Mr. Baldwin died in 1866, but the business of the "Baldwin Locomotive Works" is still carried on by the firm of M. Baird & Co. The old shop, erected in 1834, still stands, but around it has grown up the huge establishment, of which the engraving shows a part. On North Broad street, in an area of 240,000 square feet, nearly two thousand men are kept busily at work,

cate, certain to fit with absolute exactness, could be forwarded at once.

Natural Gas.

The fact that a large and steady flow of gas had been obtained by boring into the earth at various points on the Lake Erie shore, induced the Buffalo Gas Company to put down a well in that city, in the expectation of reaching gas.

The work was begun on the first of February, and is now completed. The first vein of gas was struck at a depth of 318 feet, and the gas fissures gave out their contents at nearly regular distances of 20 feet thereafter. At the depth of 630 feet the salt water was thrown out of the well with such violence as to show there was a very strong impelling force beneath it. The water was then pumped out and the well was tested, when the gas began to flow freely. The tube, a two-inch one, was

We clip the above from a late number of the New York Gas Light Journal.

MORTON'S DOOR AND GATE SPRINGS.—These springs, though well known and extensively used at the East, have never, until now, been introduced into this State. Mr. Davis, well known in connection with his patent "Refrigerator Fruit Cars," which have so successfully transported California fruits to the East, has purchased the right for the above-named springs for the seven States and Territories on this coast, and is now here for the purpose of introducing them. The object of the invention is to obtain a more reliable and serviceable spring than has hitherto been in use for closing doors and gates. The device is simple, cheap, durable and not unsightly, and may be seen and examined on the doors of the *Alta* office, on California street, where builders, architects and others may call and examine them at their leisure.

MECHANICAL PROGRESS.

THE "WOOLWICH INFANT."—This is the nickname of the 35-ton gun, which has recently been tested. *Nature* for May 18th has a notice of it, from which we condense: "That the gun is not merely a show production, as was the case with the monster Krupp cannon, but a really serviceable and efficient fire-arm, is shown by its endurance of the severe test to which it was subjected at proof. On this occasion the 700 lb. projectile was thrown from the gun by the enormous charge of 130 lbs. of gunpowder—the largest, in fact, that has ever been safely consumed in any fire-arm—the explosion being without the slightest injurious effect upon the steel bore or surrounding wrought-iron castings. The solid cylinder of iron which constituted the shot issued forth at the terrible velocity of 1,370 feet per second, and, after traveling some fifty yards, buried itself in the hntt of loose earth to a depth of thirty-three feet. * * It is calculated that at a distance of fifty yards the heavy projectile would be thundered forth with such force as to penetrate fourteen and a half inches of solid iron; an armor plate such as no vessels of our present construction are enabled to carry. At two thousand yards—upwards of a mile, therefore—the shot would possess enough penetrating force to pass clean through the side of the strongest ironclad afloat. * * The utmost distance to which 'the Woolwich infant,' as it has been nicknamed, will in all probability be capable of projecting a shell is about ten thousand yards, supposing the arm to be laid at an elevation of some thirty-three degrees. So satisfactory, indeed, has this experimental structure turned out, that a further batch of sister guns have forthwith been commenced, and will serve to arm some of our heavy iron-clads which are now building. Only a small number of such weapons will be carried by these vessels—two, or at the most four, apiece—and thus our modern men-of-war will present a perfect contrast to those of a dozen years ago, when a ship, being regarded merely as a box of guns, sometimes received on board as many as a hundred and thirty cannon. Nevertheless, a broadside delivered from four guns of these giant dimensions (for the whole armament being carried in turrets may be brought to bear at one time), representing almost a ton and a half of metal, very far exceeds that which an old first-class three-decker could throw into her antagonist, and would indeed be sufficient to sink most vessels at a first discharge."

TERRA COTTA.—This material, which sixty years ago was in favor, but has been out, is again attracting much attention. The International Exhibition at South Kensington is rich,—says *The Engineer*,—in terra cotta. That journal goes on to describe the manufacture. We condense from the issue of May 12th:—"The substance of the article is clay from Dorsetshire and elsewhere. The blocks or lumps being dried, are hammered into fragments, ground and sifted; the fine powder is then moistened, and becomes plastic, and, after kneading, perfectly homogenous. It is then pressed by hand into plaster moulds, and afterwards hand finished with all the care bestowed by the artist upon a block of marble. The 'touching-up' process having been completed, the cast is allowed to stand in a room until a considerable portion of the remaining moisture has evaporated. A lighter tint then shows itself, and the clay becomes sufficiently hard to be handled without receiving any impression or distortion. It is very important that this drying of the clay should take place equally in all parts. A draught of air setting in one direction may produce an unequal drying, and the effect will be seen in a cracked and distorted figure when the object is taken out of the kiln. When duly hardened by the atmosphere, the terra cotta casts are put into the kiln and baked, or 'fired.' If this operation be effectually performed, the clay becomes slightly vitrified and extremely hard, so much so that a pointed steel instrument, such as a knife, produces no effect if drawn across the surface, but sends forth brilliant sparks. This is the test of true terra cotta. Arches, pillars, friezes, chimney shafts, and other architectural devices and decorations, are produced in terra cotta, at a price from

half to one-third that of Portland stone. In some instances it is glazed, as in the case of garden seats, thereby producing a smooth and glassy surface. In reference to the decorative use of terra cotta, it is observable that the more elaborate the decoration is made the greater is the cheapness as compared with stone. The manufacture is largely on the increase, and there can be no doubt that the present Exhibition will give additional impetus to this ornamental industry."

A NEW LATHE.—The *Cabinet Maker* for May 20th has a description of a recent English invention, from which we extract:—"It is for turning articles in wood of any desired shape, and any length, without 'chucking' the pieces. The machine is of a lathe-like form provided with a hollow mandrel, through which the blank is caused to pass by feeding mechanism which consists of a pair of rollers, one of which is plain and the other toothed or serrated. The rollers are adjustable by springs, so that blanks of any size within the diameter of the hollow mandrel can be placed between them. The blank as it leaves the feed rollers is acted upon by rotating cutters, which reduce the wood or metal to a circular form to prepare it for the shaping cutters. The blank then enters the hollow mandrel and passes through it, when the shaping cutters are caused to act and produce hollows and projections upon it according to the shape of the pattern plate, which is upon a wheel on the side of the machine. The wheel is fitted in a slot in the frame, so that it can be removed and others placed in its stead according to the length of the article to be produced. The cutters are preferably of V shape and revolve at a high speed; they are caused to act upon the blank by means of a pin which works against the pattern plate. The cutters are adjustable and follow the undulations of the pattern by means of springs. The article as it leaves the shaping cutters is received by an automatic holder, which is also a polisher or finisher, so that the article before it finally leaves the machine is in a finished state. The hollow mandrel can be reduced in size by inserting short tubes into it, and the knives adjusted accordingly. There is scarcely any limit to the variety of articles which can be produced by this lathe; among them may be mentioned wheel spokes and naves, chair legs, table legs and rails, banister columns, pen holders, billiard cues, crochet needles, broom handles, furniture knobs and rails, piano action rods and walking sticks, knife and tool handles, vent pegs and railway trenails, curtain rods and headstead poles. All that has to be done is to set the machine in motion and enter the stuff between the feed rollers, keeping up piece after piece as the work is completed for any period of time."

NEW SOUNDING APPARATUS.—At a late meeting of the New York Association for the Advancement of Science and Art, G. Livingston Morse described a device of his own, which consisted in arranging several glass spheres, one above the other, within a casing of hemp or leather, the case tapered at both extremities, and containing at its lower portion a small flexible mercurial reservoir, so constructed that, on receiving pressure, the mercury will be forced from the reservoir into another vessel. When the instrument descends in the water, the quantity of mercury forced by the pressure from the reservoir into the receiving vessel determines the precise pressure, and indicates the exact depth of the water. A freezing mixture is intended to surround the mercury, and keep it at an even temperature. A weight is fastened to the instrument, which weight is detached when it strikes bottom, and then the instrument immediately rises to the surface. No time is used.

PINS.—The annual product of pins in the United States is 2,000,000 packs, each pack containing 3,300 pins, or a total of 6,600,000,000. This is the yield of eight factories. One manufacturers' agent in Boston, according to the *Commercial Bulletin*, sells every six months 1,000 cases, each containing 672,000 pins. The factory represented turns out eight tons of pins per week. Hair pins are jobbed by the case, and but one factory makes them, but that at the rate of fifty tons per month. The machine which cuts and bends the wire, makes 360 hair pins a minute, ready for japanning. The production and consumption of pins increases ten per cent. annually.

SCIENTIFIC PROGRESS.

A NEW CONNECTION FOR THE INDUCTION COIL.—Prof. E. J. Houston describes in the *Journal of the Franklin Institute* for June, some experiments made with a view of increasing the quantity of the spark of the induction coil without greatly diminishing its length. By connecting one of the poles with the earth, and the other with a large insulated conductor, a thick quantity spark five inches in length was obtained with an instrument which throws a six-inch spark in free air. We quote: "One of the poles or ends of the secondary wire was connected with the earth by a copper wire attached to a gas pipe. The other pole was connected with a wire, which rested on a large lecture table holding the coil. On turning the break piece, the electricity, instead of being lost by passing along the wires to the earth, jumped from the pole connected with the table, to that connected with the earth. The thickness of the spark was greatly increased, its length diminished, and its color changed to a silvery white, as when a Leyden jar is placed in the path of the discharge. While the electricity is flowing between the points, long sparks may be drawn from any part of the table, or from any metallic article within eight or ten feet of the coil. * * A large insulated conductor was extemporized by placing some old tin stills and percolators on large glass jars. On connecting one of the poles with the gas pipe, the quantity of the spark was increased. The conductor was then divided into two, of about equal size, which were connected with the poles. The quantity of the spark was increased, with, however, great diminution in the length. By successively diminishing the size of one of the conductors, and increasing that of the other, the length of the spark was increased, without any sensible diminution in its quantity, until, when one of the conductors was less than one square foot in surface, a fine quantity spark of about five inches was obtained. * * In all the experiments in which one pole was in partial connection with the earth, as when it rested on the table, the loss of electricity must have been very great, for several gas and water pipes are in connection with the table. If, then, the table merely serves as an imperfectly insulated conductor, which allows the rapid induction of electricity in the secondary wire by its rapid discharge, and thereby, notwithstanding the loss, gives so great an increase in the quantity of the spark, it would seem, that if, instead of the table, an insulated conductor of very large surface were used, a much greater increase in quantity would be obtained."

LIGHT THROUGH COLORED GLASS UPON VEGETATION.—At the last monthly meeting of the Pennsylvania Society for promoting Agriculture, General Pleasanton read an essay upon the chemical effect of the sun's rays upon vegetable life when transmitted through different colored glass. The following experiment with a grapeviny was noticed. The grapeviny was 84 feet by 26, and 16 feet high at the ridge. Into the glazing, at every seventh row of panes of white glass, a row of violet glass was introduced, alternating on opposite sides of the roof, so that a violet beam should fall eventually on every leaf in the grapeviny. The cuttings planted grew rapidly and new wood was noticed daily. In a few weeks the walls and inside of the roof were closely covered with luxuriant foliage. Experts pronounced the vines thus treated far superior to those grown in the usual way. Cuttings planted in 1861, in 1862 produced a wonderful crop of grapes. In 1863, the amount of fruit was equally large, and has continued thus, season after season without abatement, the vines seeming to require no time to rest.—*Iron Age*, May 18.

OZOKERITE.—In our issue for June 3d we gave an item from London *Engineering*, in which this substance,—there called "ozokerit,"—is spoken of as a vegetable wax. Prof. Wurtz, in a late number of the *Gas-Light Journal*, says of it: "Ozokerite is nothing more, or less, or other, than mineral paraffine, which is an abundant natural product concomitant with our Pennsylvania 'petroleums.' It was first discovered as a mineral species in 1833, in Moldavia, by Von Meyer, and is known throughout the German countries quite familiarly as 'Erdwachs' (earthwax.) Its composition approaches carbon 85 hydrogen 15, which appears to indicate (if it belongs to the saturated hydrocarbons, as the most eminent of living chemists, Berthelot, appears to have proven, or what he calls

the "formene" or marsh gas series, of the generic or molecular formula C_nH_{2n+2}) somewhere about the composition $C^{84}H^{16}$, which corresponds exactly to this. I must be remarked that Berthelot's examination of American paraffines by his method of synthesis by hydrogenation, gave him a molecule much more highly condensed than this, namely $C^{80}H^{12}$, calling for the centesimal composition carbon 85.04, hydrogen 14.96. An analysis of Galician ozocerite, by Hofstaedter, is cited by Dana, in his last edition (p. 732) which gave carbon 84.34 hydrogen 14.87. All paraffines, however, both natural and artificial, are evidently mixtures of compounds of typical composition, which may vary within small centesimal limits."

ACTION OF HEAT ON PROTOPLASMIC LIFE. At the meeting of the Royal Society in London May 4th, F. Grace Calvert, F. R. S. read a paper upon this subject which gave rise to a discussion, some of the experiments detailed seeming to prove that life might remain even after a temperature of 300° F. for half an hour. Dr. C. Bastian considered the experiments wholly inconclusive. "With regard to the influence of heat upon the life of Bacteria and many other organisms, Dr. Bastian gave some particulars concerning experiments, which tended to show, as he thought, conclusively, that they were all killed by an exposure in fluids, for ten minutes, to a heat of 60° C. (140° F.) There was no difficulty in ascertaining when Amoebæ or Ciliated Infusoria were killed, though with respect to Bacteria there was much more difficulty. Where the movements were not of an active character, after the Bacteria had been subjected to different degrees of heat, no reliable opinion as to their life or death could be arrived at. Bacteria which were really living might in many cases exhibit movements different in no respect from those which dead Bacteria would display. From the exhibition of such movements, therefore, it could not be positively affirmed that the organisms were living, or that they were dead. The case was different, however, with regard to reproduction—dead organisms could not multiply. Having found a fluid, therefore, which was most suitable for the nourishment of Bacteria, but which seemed wholly incapable of giving origin to them *de novo*, he inoculated portions of it with living Bacteria, and then found that those fluids which had been heated to 50° C. or 55° C. for ten minutes became quite turbid in two or three days, whilst others, heated for the same time to 60°, 65°, 70°, 75° C. and upwards invariably remained clear and showed no signs of turbidity. As living Bacteria will always multiply under suitable conditions in suitable fluids, their failure to multiply was the best evidence that they had been killed."

PHOSPHATE PROCESS FOR UTILIZATION OF SEWAGE.—David Forbes, F. R. S., has a second paper upon this subject. Our readers will remember a notice in the Press of his paper read last year before the British Association. He now gives results of the working of the process upon a large scale. We quote from the *American Chemist* for May: "To the disposal of the sewage by distributing it at once over the land, there are several objections. The suspended and most offensive solid matters in the sewage cannot sink into the soil, but remain upon the surface, covering the plants with fetid matter and polluting the atmosphere; moreover, sewage, although rich in ammoniacal salts, is very poor in phosphates, and therefore its application in general farming is restricted. By the application of the phosphate process these difficulties are overcome. This consists in treating the sewage with a solution of the native phosphate of alumina dissolved in sulphuric or hydrochloric acid, which arrests decomposition and causes the precipitation of the suspended matter. The liquid thus purified will now carry to the land a considerable quantity of soluble phosphates in addition to its other ingredients. The process as in operation at the Tottenham Sewage Works, goes a step further by precipitating all the fertilizing materials. The sewage is run into reservoirs along with a suitable quantity of the phosphate solution, and immediately afterwards milk of lime is run in sufficient to neutralize the acid of the solution. This precipitates the phosphates in solution together with all the organic matter, and, after settling, the supernatant water can be discharged into the streams, without polluting them. The purification requires from three to eight hours. * * The writer, however, does not think the manure will pay the cost of the process, though it will nearly do so, and is considerably more advantageous and economical than the other processes proposed."

CORRESPONDENCE.

Wastage of the Precious Metals.—No. 3.

[Written for the Press by ALMANN B. PAUL.]

The closer we investigate the question of loss of the precious metals, the more astounding are the facts disclosed, the millions upon millions that have been allowed to escape from our hands can only be estimated by the amount produced. That all the fault of loss may not be laid on gold miners, I will now present some facts connected with silver mining, taking a few of the prominent, and most efficient cases of working on the Comstock lode, as evidence of what the loss is in the best class of mills, working on the best ore. By this means the reader can form some idea of what the loss is likely to be in this poorer class of mills and on ores less easy to manipulate. From the statistical tables now before me of the Hale and Norcross Co., I find that in one year 28,000 tons were worked, producing \$1,135,220, with a loss of \$762,516, being about 36 per cent. The product of 14 mills, all working for several months on Comstock ore, was \$816,977, while the assay value was \$1,288,132.

It will thus be seen by the most unquestionable statistics that the best of the Comstock mills do not average over 65 per cent., though some claim, but have not kept statistics to prove it, that they have worked up to 75 per cent. The Comstock has produced (without entering minutely into a calculation), about \$140,000,000, making a loss of over fifty millions of dollars in less than twelve years. As corroborative evidence of the loss by mill working in general, is the fact that the working over of tailings has grown into quite a business, the product of which in a measure lessens the percentage of loss for amount worked, but the quantity retained is small in proportion to the amount of ore reduced; so that a deduction of 5 per cent. on gross loss will probably give full credit for that which is produced by re-working.

It is a very singular fact that in no portion of the State of Nevada, are the ores as pure as those of the Comstock lode, and as all are worked upon the same plan as the Comstock, their percentage of value is much less—excepting in cases where furnaces are used and no expense spared to purify the metal. I am speaking only of mill ores. The reason of this low percentage, is that lead, copper or antimony, in all their various combinations as sulphurets, carbonates and chlorides, is more or less intermixed with the ores, vitiating the mercury, and thus rendering amalgamation difficult. In gaining percentage in silver working, the question of expense is more to be considered than gold. The ores of Nevada, in fact I may say silver ores everywhere occur in such a multiplicity of combinations that it requires more skill, science and experience to manipulate them, than gold, and yet the percentage on the whole, is above that of gold working in California, showing, as I assert, that our system of silver mining is ahead of our gold mining. In silver districts, about every locality has its own peculiar combination of base and precious metals, which combination exacts respectful consideration, or great loss is the result. To be just, we must admit, that while some mills working on very troublesome ore do not produce over 35 per cent., there are a few mills, as before remarked, working regardless of expense on rich ores, which do produce on the average as large as 85 per cent.

There is one marked difference, too, in our gold and silver mining, and that is, a clearer knowledge of what the loss is—if only 30 per cent. is obtained, they know it and seek to better it. The system of sampling ores, and the careful assaying of the same, is carried on now in nearly all the Comstock mills to a commendable degree of exactness, which is not only highly important in a statistical point of view to those interested directly, in a pecuniary way, but is of general value. This is worthy of imitation in California, but, at the same time, no such correctness can be expected in gold, as in silver; for the reason, that silver is more universally disseminated in the ores, while gold is less so, and as one portion may have a small particle more than another, its greater value when multiplied into tons, often renders erroneous values. It is only by great care

with a number of assays, that correct values can be obtained in general working. Tests, such as given in my last, are more to be relied on. The silver mills of Nevada surpass the best gold mills of California in order, system, neatness, expansiveness and of course expense—but that expense pays. There are mills there costing over one million of dollars and but few less than \$25,000, while the average will reach as high as \$80,000 possibly \$100,000.

If a California gold miner, who has not had experience out of his own State, should visit the best works of Nevada, he might be much benefitted by what he saw, and possibly become less conceited of the perfectness and vastness of California mining. At all events he would be satisfied that there was something yet to do at home. There is one thing in favor of Nevada, that for silver mining she has had full command of capital, while gold mining has had to hold its own the best it could; but let more interest be manifested in gold and it will in every way come fully up to the standard. With this I will close, although I could write more on the same subject, with a multitude of facts, setting forth the loss daily taking place—wealth which we all would like to handle, and are much in need of in the present condition of business. It is to be hoped at least, that the facts concerning these losses will be more closely investigated, all of which will rebound not only to individual, but to the general good.

The Sanitary Effects of Coal Oil Questioned.

EDITOR'S PRESS:—Your correspondent was much astonished by a statement which has been going the rounds of the papers of late, purporting to emanate from a distinguished physician of Santa Barbara, ascribing the immunity which that country enjoys from the ravages of such diseases as scarlet fever, small-pox, diphtheria, chills, and the like, to the presence of such large quantities of petroleum in that portion of the State. On perceiving in your last issue that this hypothesis had received the sanction of so eminent an authority as your Santa Barbara correspondent, it becomes necessary to examine the subject more carefully and the result is the unqualified adherence to the new doctrine by your present correspondent.

The Santa Barbara savans evidently explain the action of the "peculiar ambrosial influence pervading the air," by the aid of the germ theory of disease, and the "well known action of carbolic acid in destroying low forms of animal and vegetable life," and as petroleum is supposed to contain in its complex arrangements of atoms those necessary to the formation of carbolic acid, it does not require a very strong effort of the scientific imagination to convert the potential into the actual.

These curious speculations led your present correspondent to search for some equally startling hypothesis whereby to account for the remarkable fact, that, while San Luis Obispo county enjoys the same immunity as Santa Barbara county from these epidemic diseases, we have here no coal oil cave in our lamps and oil cans, so our atmosphere lacks the "ambrosial sweetness" of Santa Barbara. After an immense expenditure of brain force, we have been enabled to give birth to a hypothesis, which we think will explain all the facts, without dimming the lustre of the oleagenous theory of our sister county. We start with the same major premise, viz., that these epidemic diseases are propagated by the presence in the atmosphere of the germs of certain low forms of animal or vegetable life, which in Santa Barbara have been eliminated or destroyed by the happy ambrosial influence of coal oil.

Now Prof. Tyndall in his lecture on Haze and Dust, mentions the remarkable discovery made by Schroeder in his experiments on spontaneous generation, that this microscopic filth can be completely removed from the air by simply passing it through a thin stratum of cotton wool; the wool acting as a filter; indeed he recommends that the respiratory made of cotton wool be worn by persons who are obliged to enter a contaminated atmosphere.

We suppose that in the discussion of such an important subject as this, the change of an adjective will make no material difference, and indeed when we venture to substitute "sheep" for "cotton" as the qualifying word to "wool," we only follow

the example of our worthy brothers of Santa Barbara, who make "petroleum" equivalent to "carbolic acid."

A third argument is derived from the well-known fact, that San Luis Obispo county is pre-eminently distinguished from all other counties in the State by the universal presence of sheep. The hills and valleys in every portion of the county, from morn to dewy eve are white with innumerable bands and flocks of Merino sheep. The conclusion therefore is self-evident, that the salubrity of our climate can only be accounted for by the fact that the winds which blow down to us from the northern portions of the State, laden with the germs of scarlet fever, small-pox, diphtheria and every other hideous disease which is endemic in those unfortunate regions, having to pass over and through the fleeces of so many thousand sheep are completely filtered of those organic impurities, and that the wretched germs, by a peculiar process of pangenesis, are transformed into that pest of all sheopmen, the scab, and as such require the "carbolic acid dip" for their destruction.

Were it not malicious we would suggest to the Santa Barbara savans that probably the thick stratum of wool between here and Santa Barbara might be as effectual a disinfectant as the coal oil—that there may be no germs in the atmosphere—that, indeed, the immunity which we both enjoy may be explained more simply than by either hypothesis, i. e., both are sparsely settled counties and in comparatively little communication with the outside world, and these epidemics have never prevailed for the same reason that the climate is not good for bed bugs or cockroaches, which is—that they have never been brought here.

As for us, we live in the belief (shall we say the hope?) that as the county settles up and communication with the outside world is more frequent, we shall be as severely afflicted as other civilized countries, and the time will come when the physician of these southern portions of the country, instead of having to eke out a miserable existence in patching up the effect of night's debauch and assisting into the world a yearly crop of children, will be able to see in this daily practice the same types of disease which they now read in their medical journals with envious eyes!

MEDICO.
San Luis Obispo, June 5, 1871.

The Great Valley of Los Angeles.

EDITOR PRESS:—The great valley of Los Angeles county extends from the sea coast north of the isolated hill of Point Pedro, in a southeasterly direction, parallel to the sea coast, a distance of some forty miles in length, by ten to fifteen in width; embracing all the space between the foothills and the sea. This plain is crossed by the San Gabriel and New rivers, which are in fact, the same stream, running in two channels, the intervening strip of land being called "Los Nietos," or the wet lands; the same terms including also the lands lying contiguous on the east and west sides of said rivers.

This tract extends from the sea to the "Moute," which is simply a continuation, and has heretofore been known as the famous corn region. Next east of the San Gabriel, is the "Coyote," a smaller stream; and lastly we have the "Santana," which rises in the lofty mountains east of San Bernardino, and flows on through the San Bernardino valley, and the low hills, separating that from the Los Angeles valley, passes the town of Anaheim, on its way to the sea, and furnishes an ample supply of water for irrigating the lands contiguous to it, for a distance of some sixty miles.

This great plain or valley seems to have been originally an extensive salt marsh, resembling those around the Bay of San Francisco, and has been reclaimed and made valuable by the constant and long continued deposition of sand, gravel and soil brought down by the rivers, streams and gulches from the adjacent hills and more distant mountains, so that it must be from the manner of its formation, entirely alluvial.

The soil, which is many feet in depth, is composed of a mixture of fine sand, clay and vegetable mold, and is the "cream" from the surface of the back country which has been "skimmed off" by the action of the rains, and deposited in this favored valley, for the benefit of those who have foresight enough to settle upon and possess it.

Its productive powers are wonderful.

Its capacity for absorbing and retaining moisture is remarkable, and when once thoroughly broken up and pulverized, it is as mellow and friable as an old and well cultivated garden, and can be plowed and planted at all seasons of the year.

A large proportion of the water flowing in the rivers, sinks during their passage through the low lands, and permeating through the porous soil, maintains its level throughout the whole extent of the valley, and is found at a depth of from one to twenty feet from the surface, (averaging about six feet), the depth depending entirely upon the undulations of the surface. The supply is practically inexhaustible, and has not been affected by the drouths of the past two years.

The lands in which sand predominates, and which are not covered with a crust of "hard pan," are always moist to within an inch or two of the surface. Those in which the clay is in excess, (which are much the best) are generally covered with a crust (hard pan) of from six to fifteen inches in thickness, which, when dry, is exceedingly hard to break and pulverize with an ordinary agricultural implement; but which, when wet, swells and becomes friable. If, in this condition, it is well pulverized, and not permitted again to become sodden with excessive moisture, it will remain permanently loose and mellow, receiving from below an ample supply of moisture by the process of capillary attraction, and will never again be dry.

This valley, when properly cultivated, will be independent of rain; and the cultivator, in years of drouth, will always be able to raise fair crops.

As this letter is already spun out to a considerable length, I will close with this remark, that, if you desire, I will, on some future occasion, give you my views and experience in regard to this and kindred topics.

WM. R. OLDEN.

Anaheim, May 31, 1871.

We should be pleased to hear again, and often from our correspondent.

Banner District, San Diego County.

EDS. PRESS:—Since my last communication, April 2d, mining has very much improved, and matters in general look better.

The Golden Chariot Mine.

This Company has had 12 tons of rock crushed at McMeah's mill, averaging \$182 per ton. The shaft on this mine is down 50 feet, and they are still sinking—rock improving.

The Baily Mine.

A level is being driven on this mine on the vein, which will give an immense amount of quartz, when stopped. This rock is rich in silver and is worked in an arrastra, at present, for gold only. The vein is fully 3½ feet wide.

Redman Mine.

Quartz is being crushed at present from this mine, which it is supposed will pay \$200 per ton. The vein at present is about two feet wide on an average.

Kentuck.

This company has had about 30 tons of rock crushed, averaging \$76 per ton. The shaft is down 37 feet, and they are now drifting the width of the vein, from 2 to 8 feet. This is considered one of the best mines in the district. The quartz is stratified and full of sulphurets; and indications of silver are present.

Madden Mine.

This company is now sinking a shaft. They are down about 28 feet from the surface and have two veins in the shaft—one about 16 inches wide, other from 10 to 12 inches. The upper or south vein is the richest. This company has had 15½ tons crushed, averaging \$41 per ton. The walls of this vein are very hard.

Antelope Mine.

A shaft is being sunk on this vein, and a level run. The vein varies very much in size from 6 inches to 10 feet. The country rock is very much disturbed and dislocated. This has been the best paying mine in the district, so far. The company have erected a new 5-stamp mill which has been running successfully for the last ten days. From 15 tons of rock crushed, they cleaned up 13 lbs. of amalgam.

Chaparral Mine.

This company is still sinking with fair prospects of success. We intend to have the Banner district well represented in the coming Mechanics' Institute Fair. We expect to win in the way of specimens. We have had a large number of distinguished visitors here lately; the SCIENTIFIC PRESS is a great favorite in this camp, and before long its circulation will be largely augmented.

S. D. McLENNON.

May 23th, 1871.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

EXCHEQUER.—*Chronicle*, June 3d: Work on this mine is progressing satisfactorily. A few days since a vein of gold quartz was struck in the east drift of the main tunnel, 200 feet north of the winze. The vein is eight inches wide, and two lots assayed 2,547 and 2,057, respectively, in gold and silver per ton. Manager Chalmers is cross-cutting the ledge to get to the hanging wall; has run 27 feet and is not through it—thus far it is 33 feet wide, 6 feet of it being in the tunnel.

GOT IT.—*Miner*, 3d: This morning the best strike of the season for the Globe was made in the main tunnel. We saw a chunk of near 20 pounds weight which was pronounced by judges worth \$50 per ton. The vein is said to be five feet wide next the east wall.

A new strike was made this week in the down shaft of Monitor No. 3. Ore of fine quality and apparently a good body of it is coming in on a pitch from the west. Good ore still found, in both drifts on the main level.

The raising of the last timbers of the Monitor mill last Saturday was well attended, and the timbers went together like clockwork.

AMADOR COUNTY.

THE KENNEDY MINE.—*Dispatch*, June 10th: The owners had a clean-up Sunday, after a 20 days' run, which yielded \$7,000. We understand that the lead is widening out as they go down, and the prospects are daily becoming more flattering.

THE STRIKE.—The same journal says "the conduct of the league in compelling men to quit work who did not belong to the association—is justly condemned by citizens of the county generally. We are inclined to believe, however, that the strike is about ended; and that the mills that have been stopped in consequence of it will resume operations as soon as they can get men to work, which may take them a week or two; as we understand the owners have resolved not to employ any of the members of the league again."

CALAVERAS COUNTY.

THE BIG MINE.—*Chronicle*, June 10th: In this mine at Railroad Flat, recently purchased of Lewis Brothers by a San Francisco company, work is vigorously pushed, 14 men being employed. The lead is developing finely. A portion of the rock has been hauled to Harris' mill and crushed, netting \$3,000. We hear it rumored that the company will lease the Lewis mill.

A HEALTHY CHUNK.—The Zambrana mine at Mosquito Gulch, continues to yield enormously. The last crushing—50 tons—produced 459 ounces of retorted gold, worth \$8,032, an average yield of \$160.50 per ton. The rock has been paying at nearly the same rate for some time.

PALOMO.—The average yield of the Palomo mine in Lower Rich Gulch, for some time past has been \$4,000 per week. Last week \$5,000 were cleaned up. The main shaft is to be put down 200 feet deeper, and the sinking has already commenced. When completed the total depth will be 600 feet. It is also contemplated to erect an additional battery of 40 stamps, making 76 in all.

GOLD.—Lewis Brothers & Co., near Railroad Flat, cleaned up recently, the proceeds of the run approximating \$3,000. We learn that work has been partially suspended. It has become necessary to sink the shaft deeper.

THE SITUATION.—We are informed that the product of the mines in this section of the county, so far this season, fully trebles that of last year. Over \$20,000—quartz gold alone—were shipped from Mokelumne Hill the present week, and no returns were received outside of Lower Rich Gulch, Railroad Flat and Mosquito Gulch. Placer mining is also improving. It is true that the easily worked surface is nearly exhausted; but hydraulic and tunnel mining are being prosecuted with increased vigor.

EL DORADO COUNTY.

GEORGETOWN.—Cor. of Placerville *Democrat*, June 10th: The mining interests of this divide continue to improve. New and richer developments are made every day. The St. Lawrence carries free gold all through, and is five feet wide. The company are sinking their shaft by contract, having let it last week, for 50 feet. I have been informed that they have been offered

\$100,000, but that they ask \$200,000. The great advance in price from this \$15,000 paid is owing to the thorough prospecting that has been done. The Eureka continues to take out ore. The Taylor Co. are pushing things lively, and taking out rock that will run up to \$30 per ton. They will start the mill next week and run through 100 tons before erecting any more stamps. The Sliger claim was handed to-day by Peachy, Cronise and Cochrane, of San Francisco, for \$25,000—four months time.

INYO COUNTY.

BULLION.—*Independent*, June 3d: During the week ending Saturday, May 27th, there were shipped from the works of the Owens' Lake Silver Lead Co. at Swansea, 581 bars of bullion, weighing 51,792 pounds.

KERN COUNTY.

KERNVILLE.—Cor. of the *Courier*, June 3d: The Big Blue mill, 16 stamps, and the Wadleigh mill, of 10 stamps, both belong to the Blue Lead Co., and are in charge of Mr. Sanhorn, who has a lease of them, together with all the mines belonging to the company. Big Blue has been worked by open cut to a depth of 30 or 40 feet and 70 feet in width across the vein, and a drift has been run about 36 feet further in the direction of the hanging wall, but no wall has been found. Assays made some time since of rock taken from every six inches across the vein for 60 feet, averaged \$17.50 per ton. Bull Run has been abandoned for the present, except that two small companies are taking out rock on shares near the eastern extremity, above water. This ledge, two feet in width, is quite rich, averaging \$20 per ton. The Jeff Davis is being worked on shares. The ledge is not extensive, but extremely rich, frequently turning out \$75 to \$100 per ton. The Beauregard has paid richly near the surface, but is not worked at present. Summer ledge, principally owned by A. Staples & Sons, is the northeasterly half of the Big Blue. A shaft has been sunk 80 feet from the bottom of which they have recently taken rock which turned out \$70 per ton at the mill.

NEVADA COUNTY.

ALTA No. 3.—*Grass Valley Union*, June 8th: Good dirt is coming out of the shaft from the north drift, and the bedrock is pitching. It is supposed a new channel has been struck. On Tuesday night an attempt was made to burn the building over the hoisting works, but the blaze was seen in season and extinguished.

PROSPECTING.—The Manhattan tunnel has reached a depth of 200 feet and is still sinking, producing good quartz; and the Branch Mint tunnel is in one-eighth of a mile, and will lap the ledge in a few weeks at an enormous depth. Both claims are expected to make good mines at once.

SOOGS.—*Gazette*, June 7th: The old Soogs mine, known also as the Nevada City mine, has been leased to parties in Virginia City who will commence work in 20 days.

THE RICH STRIKE.—The *Transcript* of 7th says that the \$800 in dust taken out by the two men in four days on the Washington road is of such mixed character, being partly coarse river dust, as to render it probable that it is the dust lost by the stage owner as before suggested.

SELBY FLAT.—A correspondent writes: "With capital a company might run a tunnel with a 16 inch grade from Selby Flat under Thomas' Flat and Myer's ravine, until the grade comes out. The distance would be about a mile and the line direct. Shafts required to work the tunnel in sections would not be more than 30 feet deep. By a similar tunnel, the writer thinks the ground could be worked in the Kansas, Empire, and the claims on Cement Hill. The writer says the ground is known to be rich and extensive enough to last a hundred years, and that a company opening such tunnels would be well paid, though it did not own a foot of ground."

Same of 8th says: The Mount Auburn and Radical quartz claims, out near Cleveland's ranch, have been purchased by San Francisco parties, and work will soon be commenced on them.

PLACER COUNTY.

LAST CHANCE.—*Stars and Stripes*, June 1st: The Yule claim, two miles from Last Chance, at Startown, is the best claim in that section. The scene of present operations is 1,300 feet from the mouth of the tunnel, where a "breast" measuring 130 feet parallel with the tunnel, is being driven toward the West line of the Yule, which is the East line of the Morning Star. Thirteen men besides the Superintendent are employed. Along the line between the two claims, and for 300 feet further into the hill, the Morning Star Co., have realized returns equal to those obtained in the

Yule claim. We saw the clean up on Friday which was limited to the three upper sluices and resulted in a yield of twelve ounces five penny weights of coarse gold salable for \$18 12½ per oz. at Michigan Bluff. Including the above, the yield for five days of last week amounted to 64 ounces, netting over and above all expenses more than nine hundred dollars. Considering the uniform results obtained, we may calculate on seven hundred ounces as the yield from the block of ground—ninety by one hundred and thirty feet—between the present line of operations and the West line of the claim.

GOLD RUN.—Cor. of same: Judd & Co., a few days ago cleaned up \$6,000 from 18 days' run. This claim is managed by Judd in person. His sluices are four feet in width. He runs 500 inches of water and throws it against a bank of 150 feet high through Hoskins, "Dictator." The cement mill of the Indiana Hill blue gravel drifting Co., will in a few days close down for repairs. They will remodel their batteries and put in a new set of mortars. This claim has paid well.

Same of 8th says of the last Last Chance mines: Anderson & Co., are getting pay very little below the figures of the Yule and Morning Star. Hyland & Co., are opening up the old El Dorado ground. Taylor & Co., are in daily expectation of tapping the "front channel" with their tunnel. Never has there been a more prosperous season or better feeling in the district.

And of Gold Run: Last week Squire Brown cleared up \$5,200 in the Golden Gate claims, after twenty-three days' run. On Friday Judd & Co. made another clean up, having run twenty-one nights and twenty days, and realized ninety-nine pounds of amalgam, valued at \$7,400 gross, a profit of more than \$5,000.

The Summit Co., at Dutch Flat, cleaned up \$4,300 after a run of 17½ days.

THE WESKE CLAIM.—*Herald*, June 10th: This is two miles above Michigan Bluff. It is a gravel claim, and contains 210 acres the property of Adolph Weske. On last Saturday a clean-up of six days' work of 20 men was 261 ounces worth \$17.50 per oz., or \$4,582.50. This shows over \$38 per day to the man, and if we deduct \$360 wages for the men at \$3 per day, Mr. Weske has cleared in one week \$4,222.50.

The same gives an extract from a private letter from Mich. Bluff, June 8th: All the talk here is about big pay in the Weske claim Turkey Hill. They cleaned up last week 264 ounces, and picked up 60 ounces yesterday before dinner. I saw several specimens of the dirt. It is a sort of blue cement and is the richest ever discovered here. The tunnel is in 1800 feet; the paying gravel is about 2½ feet thick.

DILLON MINE.—Dillon, Hines and Cowan have completed their water power pumps, hoisting works, etc., and everything works to a charm. This mine shows a monster ledge and has yielded by ordinary mill process \$80 to the ton, working all the rock good and bad.

COX & DENTON MINE.—The is, it is rumored, conditionally sold for \$20,000, \$5,000 of which is a forfeit if the other \$15,000 is not paid in 60 days.

PLUMAS COUNTY.

ARGENTINE.—*Quincy National*, May 27th: On Wednesday the old Hesler Quartz Mill, was totally destroyed by fire, supposed to have been the work of an incendiary.

BIG LEDGE.—A very important strike was made at Argentine, last week, by the discovery, in Ray & Concklin's tunnel, of a well-defined vein, twenty-two feet wide, which prospects better than any rock heretofore found in that locality.

INDIAN VALLEY.—Cor. of same: The miners of North Arm are doing unusually well. John Davis & Co. have taken out good pay; first clean-up, 10 days' run, two hands, \$450. Pierce & Pulsifer, first clean-up, two weeks' ground-sluicing, \$500; second clean-up, 14 days' pining, \$1,200. Whitlock & Lewis are doing well. Tanner & Co. have struck very rich ground. Morton & Green are working with their usual good prospect. There have been extensive diggings struck lately, which will not be worked until another season, for lack of water. Light's Cañon never prospected better in its palmy days. In Cook's Cañon, Huntington has averaged ten dollars per day for the season, with a light head of water.

BIG PAY.—Same of June 3d: Bidwell & Co., of Greenville, are crushing rock, which averages, we are told, \$20 per ton. It is from the Union mine.

SIERRA COUNTY.

ITEMS.—*Messenger*, June 3d: C. W. Hendel, U. S. Deputy Surveyor, is surveying for the Sierra Buttes Co., their quartz

mine, preparatory for a patent... It is rumored that this old quartz mill, known as Wheeler's, will be put in operation again.

SISKIYOU COUNTY.

This Yreka Union for May 31st says: The claims on McAdam's Creek have been filled up with water for a long time.

TRINITY COUNTY.

DUTTON CREEK.—*Journal*, June 3: Dixon, Hurst & Co. this winter demonstrated the fact that they had very rich ground. They also learned that the pay gravel was too hard to pipe. The only way of working their claim seems to be by blasting. This they propose to do on a large scale, by tunnels to be stored with powder by the hundred kegs, which will be fired by means of electricity.

BETTER.—Gold dust is coming in more freely and the yield so far is much better this season than last. In Weaver Basin there was a third more work done last winter than in the one before.

Nevada.

ELY DISTRICT.

BULLION.—*Record*, June 4: Wells, Fargo & Co. shipped, on June 1st and 3d, by the way of Salt Lake, bullion amounting to \$31,247.89.

On June 4th and 6th, \$27,364.61. Also, on the 8th, \$15,279.77. Total, \$42,664.38.

EUREKA DISTRICT.

PHENIX CO.—*Sentinel*, June 7th: This Co. has purchased the Silver West furnace, and the fire will be set this evening. By the 10th inst., they will commence making bullion at the rate of five tons per day. They will run on their own ore, and three and a half tons of ore that will cost to raise not to exceed \$7 will make a ton of bullion which will assay not less than \$350.

TWENTY FOUR HOURS.—Same of 8th: Eureka Consolidated Co's., Works, in two large and two small furnaces, smelted 101½ tons of ore yielding one-sixth bullion. The bullion is worth \$350 per ton. We believe that to be a large amount and of greater value, than has been made in the same number of furnaces in America in 24 hours.

MARYLAND MINE.—The English representative of the Pinto S. M. Co., was at the mine, on Tuesday, and is satisfied with the purchase. The Supt. has taken possession, and will at once proceed with the work.

NINETEEN TONS.—Same of 11th: For 24 hours, up to Saturday noon, there were smelted in two large and two small furnaces of the Eureka Consolidated, 19 tons of bullion, of the value of \$350 per ton.

NEW STRIKE IN AN OLD MINE.—We stated that the Richmond were near the point at which they expected to find a new body of ore. Two days since they found a larger body of ore than has been reached at any previous time.

HUMBOLDT.

BATTLE MOUNTAIN.—*Silver State*, June 10th: The Butts Co. is driving ahead with its mill, working 50 men on mill and mine. Knowles & Co., are erecting hoisting works on the White mine. Captain Richards, of the English Co's. copper claim, is pushing work with energy. Robert McBeth is driving away on the Buena Vista with encouraging prospects. The Trenton mine is now regarded as one of the best. A lot of the ore lately shipped to San Francisco netted \$100 per ton. The Battle Mountain mill was expected to start up on ore from the Little Giant. In addition to milling ore of a low grade, they have struck sulphuret ore which assays \$500 to the ton, and is sacked for shipping.

Frank Cole and E. D. Kelley have struck a ledge which is probably a continuation of the famous Arizona.

WILL START UP.—We understand water will be turned on the new tailings mill of the Arizona Consolidated Co. to-day.

CONTRACT.—A contract was let a few days ago on the old Whitmore mine, in Star district. This is the second extension south on the Sheba ledge.

WILL COMMENCE.—Work will be commenced next week on the tramway from the Arizona mine to the cañon, 1,800 feet below.

RAILROAD DISTRICT.—*Elko Independent*, June 10th: C. E. Gillett is opening out the Bullion mine with a large force of men. The Wehfoot has a shaft down 25 feet, showing ore worth \$75 per ton. Last Chance has an incline 60 feet deep, showing a chamber of ore nine feet wide. E. V. Robbins owns it, as he does also the Shoo Fly, which is giving out high grade ore. The Hussey tunnel has been commenced 600 feet below the top of Bunker Hill, to prospect the True and Red Jacket mines. Upon the last-named there is a 45-foot shaft, following down a 4½ foot vein of first-class ore. The May Flower shows ore worth \$60 per ton, to smelt. The Lyon has an 8-foot vein, well defined.

WASHOE.

BULLION.—Enterprise, June 6th:—There were yesterday received at the Bank of California, 36 bars of bullion, worth 76,000. This was principally from the Crown Point and Yellow Jacket mines.

Same of 7th:—There were yesterday received 12 bars of bullion weighing 1,252 pounds and worth \$40,090. The bullion was from Crown Point and Yellow Jacket ores.

SAVAGE.—The daily ore product is 125 tons. The work of re-opening the old levels is vigorously prosecuted.

HALE AND NORCROSS.—This mine is producing 100 tons of ore daily. Much work is being done in the lower level preparatory to sinking the new incline.

MORE BULLION.—Same of 8th:—Crown Point bullion, amounting to \$19,000, was yesterday received at the Bank of California.

PARKE & BOWIE MILL.—A new Parke pan, eight feet in diameter and six feet deep, is being set up. It will work over eight tons of tailings at a charge.

CHOLLAR BULLION.—The Chollar-Potosi day before yesterday shipped \$86,000. The mine is yielding 200 tons of ore per day of the average assay value of \$62.

CARSON VALLEY TAILINGS CO.—A number of persons under the above name, are engaged in the erection of extensive works in the Carson river, at the mouth of Six-mile Cañon, for the working of tailings. They own a reservoir containing over 300,000 tons of tailings. The mill will contain ten Parke pans eight feet in diameter and six in depth—each capable of working fifty tons of tailings in twenty-four hours.

KENTUCK.—The Co. are taking out forty-five tons of ore per day, from between the 600 and 700-foot levels.

ATLANTA.—The Atlanta Mill Co. Gold Cañon, are about to set up two of the eight-foot Parke pans.

YIELD OF THE CROWN POINT FOR MAY.—Same of 10th:—During May there were reduced 6,516½ tons of ore yielding \$275,647.95, or at the rate of \$42.30 per ton. There are yet thousands upon thousands of tons of equally good ore in sight.

OPHIR.—Same of 11th:—The Co. are progressing at the rate of two feet per day with the sinking of their engine shaft. The shaft has attained a depth of 765 feet, and it is the intention to continue it to 1,400.

CONSOLIDATED VIRGINIA.—The drift south from the main west drift, is in fifty-seven feet and a cross-cut to the east twenty-seven feet in length has been made—all in good looking quartz. The north drift is also in quartz presenting a favorable appearance. But little water is encountered.

SUTRO TUNNEL.—The tunnel was in yesterday 2,085 feet. The ground works well.

OVERMAN.—This mine is still yielding ore, mostly from the 226-level. There is no pay ore on the 600 or 700-foot levels. In order to make the mine permanently valuable it will be necessary to sink several hundred feet deeper.

BULLION SHIPMENT FOR MAY.—TWENTY-FIVE TONS OF SILVER BARS.—Same of 4th: The amount of bullion shipped from Wells, Fargo & Co.'s office to this city, during May, was 664 bars, weighing 49,838 pounds, and worth \$1,148,787.53.

WHITE PINE.

REVIEW.—News, June 10th:—At the Ward Beecher, notwithstanding the tramway has been running steadily all week, the huge piles of ore on the surface seem to have suffered little diminution. The mine continues to ship a large quantity of first-class ore to the Oasis mill. The tramway has been running splendidly, carrying ore from the Eberhardt & North Aurora to the International mill, which is running steadily to its full capacity. The affairs of the Eberhardt & Aurora Co. have assumed a shape to enable the thorough working of the mines. They have been running the big mill on low-grade ore, but have a lot of amalgam on hand which will shortly be ready for shipment. Original Hidden Treasure has an immense amount of high-grade ore piled up ready for shipment. Governor Blasdel is getting things in shape on the Ward Beecher Consolidated. The Manhattan mill has started on ore from this mine, and it is the intention to start the Dayton shortly. The Stanford mill has shut down for repairs, but the mine is looking as well as ever. Work on Chloride Flats is retarded, through conflicting titles; but these will be amicably adjusted ere long. We have very encouraging reports from many of the outside districts, among which may be mentioned Troy, Grant, Tybo and Schell Creek.

TROY S. M. CO.—This Co., (limited) English, will start its 20-stamp mill and a

Stetefeldt furnace of 30 tons daily capacity, on or about the 1st of August.

Arizona.

THE TIGER LODGE.—The Prescott Miner of May 27th says that Messrs. Bradshaw and Walker claim that they have found the continuation of the vein three miles south of the Silver Brick Co.'s location. Others think the War Eagle, seven miles off, is the same lode, and it is believed by Mosses, Collier and Co. that the Mammoth, discovered in '65, some five miles farther south, is still the same lode. Everything is lively, and everybody sanguine.

The Vulture Co. have five men taking out rich ore from the "Great Sixton" mine.

Idaho.

ITEMS.—Avalanche, June 3d: Jno. McNamara has a hydraulic in Barnes' gulch, below Boonville, and is doing well. Fred Warnke brought over a batch of bullion from Flint this week. The Webfoot mill will start up next week on Oro Fino ore, and will pound away all summer. Shuster & Co. are running two hydraulics in their Blue Gulch placer claim. The bank is 15 feet deep, with a face of 60 feet and pays well throughout.

BULLION.—Wells, Fargo & Co. shipped this week 10 bars of bullion, worth \$21,536.56, making an aggregate of \$62,155.88, shipped during May.

New Mexico.

The Colorado Register has interviewed Dr. B. W. Cheever, just returned, (June 7th) from New Mexico. We give a few items as briefly as possible. The mines about Silver City are pockety. Dr. C. gave up his idea of putting up a mill. The Burro mines, 40 miles south, he did not visit, but from assays and reports he believes the ore would not average over 30 ounces per ton; they are, however, true veins, and very wide. The nearest water is the Rio Grande, 15 miles off. The Harpending Co. and the California Co. have ceased operations.

Oregon.

GRANT COUNTY.—Cor. of Dalles Mountain, June 3d: M'Coy & Co. on Spanish Gulch, near Rock creek, have recently opened a very rich, and to all appearance, extensive placer of gold, which will require years to exhaust. The Co. possess a valuable water right in connection with their mine, and have constructed a ditch seven miles in extent—tapping Rock creek which affords water the entire year for hydraulic work, and for four or five months of the year eight hundred to one thousand inches of water.

Montana.

ITEMS.—Helena Gazette, June 5th: The French Bar Ditch Co. made a clean-up on Monday of six boxes of their flume, after a run of two weeks, and took out \$5,700. On Monday S. Cameron came in from Cahle City bringing with him 315 ounces of gold, the result of a run from 120 tons of quartz from the Cable mine. Jefferson City furnace is to be running soon. Ten tons of bullion was run out in a month and sent East to be cupelled.

ITEMS.—New North West, 2d: The Phillipsburg mill was only started up to run through a small lot of quartz on hand. Seventy men working in French Gulch. Milot & Co. started their hydraulic yesterday. Water plenty. The clean-ups at Pilgrim Bar and Pioneer on Sunday ranged from \$1,000 to \$3,000—rather light. The Rock Creek Co.'s Ditches are carrying 2,340 inches of water, the largest amount ever "tapped" on Pilgrim Bar. The Only Chance, and Nevins Co., at Red Mountain have their arrastras running. Both mines look well. Mr. Jos. Alger came in last evening from Phillipsburg. He made a run of twenty-two tons of Phillipsburg ore and has 256 pounds of bullion valued at \$4,500 to show for it. There is more water in Elk creek than since '66. The companies in the main gulch are making from \$6 to \$50 per day to the hand; pay streak 50 to 150 feet wide. Jones Midgah & Co. have an ounce a day to the hand in the big flat below Yreka, with 18 feet to bed rock and 4 to 5 feet of gravel. They have worked the pay streak sixty feet and haven't found the edge yet. They have 2,000 feet of ground.

The Montanian of June 1st says that Mr. Johns, Supt. of the Everett-Green Campbell Co. brought to town 20 pounds of gold retort, proceeds of one month's run of the Co.'s mill.

The Missoula Pioneer of June 1st says that claim-owners in Henderson Gulch, are making \$22 per day to the hand clear of all expenses.

Mining Stock Market.

[S. F. Stock and Exchange Board.]

SAN FRANCISCO, Thursday Eve., June 15.

The effect upon speculative values of last week's heavy transactions has been noticeable this week.

As effecting values, during last week to Friday, 9th, 200 tons ore was taken from the Overman mine, assaying \$16.72 per ton. The bullion product at the Raymond & Ely mine, from May 24th to June 7th was \$37,500 from a mill of 20 stamps; the last weekly report of the Hale & Norcross mine, (June 6th) shows 1,044 tons ores extracted, while from the Savage mine 1,080 tons were taken; the last named assaying \$32 per ton; and during the same week, 1,660 tons were taken from the Chollar-Potosi mine, assaying \$56.20 per ton. Bullion shipment on Saturday, \$10,755.

During this week to Thursday June 15th, 230 tons of ore was taken from the Overman mine. From the Eureka mine at Grass Valley \$23,000 has been received.

The sales at the Stock Board for the preceding week ending Friday, June 24, footed up \$2,319,000, the tone in general of mining stocks having been good. On Friday the 9th, there was a stronger demand for Virginia stocks at prices from \$5 to \$20 higher per share.

During the present week stocks were, on Monday the 12th, irregular; half of the Virginia stocks declining again from \$1 to \$10 (Crown Point) per share.

From the Crown Point Annual Report the moneys produced or used figure up:

Amount of bullion produced.....	\$472,181 48
Premium on the same.....	474 92
Assessment No. 20.....	36,000 00
Assessment No. 21.....	43,000 00
Rhode Island mill.....	11,034 63
Sundries.....	11,777 19
Total receipts.....	\$573,468 22

On Wednesday, 14th, the Stock market opened with some activity and prices were strong. At the Afternoon Board the market was pretty active. Belcher rose \$13; Kentucky, \$10; Hale & Norcross, \$2. Eureka fell \$12; Chariot, \$1; Gould & Curry, \$4; Hidden Treasure, \$1.

As we go to press (16th) stocks are "a little off" though for two months the share market has been unusually active; the totals for April amounting to \$10,000,000 nearly, and for May to \$13,000,000 which would be at the unprecedented rate of \$136,000,000 per annum.

Latest Prices.			
BID. ASKED.		BID. ASKED.	
Alpha Cone.....	—	Ida Elmore.....	—
Amador.....	315 340	Imperial.....	37 38
Belcher.....	188 181	Kentucky.....	147 148
Chollar-Potosi.....	50 51	Meadow Valley.....	18 19
Crown Point.....	325 325	Ohio.....	7 7 3/4
Eureka Cons.....	13 14	Orig. Hid. Treas.....	8 8 1/4
Eureka.....	—	Overman.....	9 9 1/4
Golden Chariot.....	—	Savage.....	44 44 1/4
Gould & Curry.....	70 71	Sierra Nevada.....	52 53
Hale & Norcross.....	70 71	Yellow Jacket.....	69 69 1/2

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.
Altona G. M. Co., Nev. Co., May 28, 25c. June 26—July 17*		
Carson, Virginia, Storey Co., Nev. May 5, \$1. June 9—July 1		
Eagle Q. M. Co., Cal., June 14, \$20. Aug. 8—Aug. 14		
Gen. Leo, White Pine, Apr. 21, 10c. May 29—June 20		
Gould & Curry, Va. City, May 18, \$15. June 22—July 13		
Hanscom, Del Norte Co., Apr. 28, 5c. June 10—June 25*		
Imperial, G. H., May 22, \$10. June 24—June 25		
Kincaid Flat M. Co., Tuco. Co., Apr. 27, \$2.50. June 10—July 1*		
Kentuck, May 9, \$10. June 12—June 13		
Latawana M. Co., White Pine, May 16, 20c. June 22—July 11		
Mahogany, Deer Creek, Apr. 21, 10c. May 29—June 20		
Marcella, Nev., June 2, 20c. June 11—August 1*		
Mantauk & S. M. W. P., April 24, 5c. June 1—June 19*		
Mina Rica, Placer County, April 25, 20c. May 30—June 20*		
Meadow Valley Exp., May 1, 60c. June 12—June 13		
Mountain City M. Co., June 8, 25c. June 18—Aug. 8*		
Nevada L. & M. Co., May 8, 4c. June 18—August 3*		
Neonday, White Pine, Nev., Apr. 10, 20c. May 15—June 7*		
Ophir, Placer Co., Cal., May 30, 60c. June 30—July 17*		
Overman, G. H., Apr. 28, 5c. June 3—June 10		
Pinto M. Co., Nev., May 24, 12c. June 26—July 17*		
Phenix, Eureka, Nev., April 13, 25c. May 22—June 10		
Salamanca G. & M. Co., May 4, 35c. June 12—July 10*		
Sierra Nevada, Va., April 17, \$2.50. May 22—June 10		
Sierra Iron Co., May 17, 60c. June 25—July 20*		
Succor, G. H., May 6, \$1. June 8—June 30		
Taylor, El Dorado Co., May 27, 10c. July 12—August 4*		
Taylor M. & M. Co., El Dorado, Apr. 14, 25c. May 24—July 12*		
Tecumseh, Calaveras Co., April 11, 53c. June 12—July 6*		
Yosemite, Lander Co., Nev., Apr. 12, \$1. May 22—June 19*		

MEETINGS TO BE HELD.

Alpha Cons.....	Annual Meeting, June 19
Mohawk & Montreal M. Co.....	Special Meeting, June 27*
Rogers S. M. Co.....	Special Meeting, June 20*
Silver Sprout M. Co.....	Annual Meeting, June 27*

LATEST DIVIDENDS—(Within Three Months).

Chollar-Potosi, \$2.....	Payable June 10
Chollar Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka, \$1.....	Payable June 10
Eureka (Cal.) \$1.....	Payable June 7
Eureka Cons., 75c.....	Payable April 20
Golden Chariot, div., \$7.....	Payable March 10
Hale & Norcross, div., \$5.....	Payable April 10
Natoma, div. 1 per cent.....	Payable June 5
North Star, \$3.....	Payable May 10
Redington, \$1.....	Payable June 6
Yellow Jacket, \$2 50.....	Payable June 10

*Advertised in this journal

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

San Francisco Retail Market Rates.

FRIDAY, June 16, 1871.

MISCELLANEOUS.		
Wool Sacks, new.....	40	80
Second-hand.....	45	15
Wheat—No. 1.....	13	15
Potato G. H. Bays.....	23	21
Second-hand do.....	15	16
Deer Skins, 8 B.....	15	60
Sheep skins, w. on.....	50	75
Sheep skins, plain.....	12 1/2	25
Paraffin, each.....	25	45
Dr. Cal. Hides.....	18	18
Salted.....	Dull	
Dry Meat, dried.....	16	60
Salts.....	16	60

PRODUCE, ETC.		
Codfish, dry, lb.....	60	12 1/2
Flour, ex. 5 lb. 70.....	67 1/2	75
Superfine, do.....	50	60
Corn Meal, 100 lb. 50.....	62	25
Wheat, 100 lb. 50.....	62	25
Oats, 100 lb. 50.....	62	25

FRUITS, VEGETABLES, ETC.		
Pine Apples, 100 lb.....	60	40
Bananas, 100 lb.....	30	60
Oranges, 100 lb.....	75	60
Crabapples, 100 lb.....	60	40
Cherries, 100 lb.....	60	40
Grapes, 100 lb.....	60	40
Gooseberries, 100 lb.....	60	40
Apples, 100 lb.....	60	40
Pears, 100 lb.....	60	40
Raspberries, 100 lb.....	60	40
Strawberries, 100 lb.....	60	40
Plums, 100 lb.....	60	40
Oranges, 100 lb.....	75	60
Lemons, 100 lb.....	75	60
Limes, 100 lb.....	75	60
Figs, dried, 100 lb.....	60	40
Apples, 100 lb.....	60	40
Apricots, 100 lb.....	60	40
Artichokes, 100 lb.....	60	40
Brussels sprouts, 100 lb.....	60	40
Beets, 100 lb.....	60	40
Potatoes, 100 lb.....	60	40
Potatoes, sweet, 100 lb.....	60	40
Potatoes, new, 100 lb.....	60	40
Tomatoes, 100 lb.....	60	40
Broccoli, 100 lb.....	60	40
Cauliflower, 100 lb.....	60	40
Cabbage, 100 lb.....	60	40
Carrots, 100 lb.....	60	40

POULTRY, GAME, MEATS, ETC.		
Chickens, 100 lb.....	75	60
Turkeys, 100 lb.....	75	60
Ducks, 100 lb.....	75	60
Geese, 100 lb.....	75	60
Wild, 100 lb.....	75	60
Teal, 100 lb.....	75	60
Geese, wild, each.....	3 1/2	60
Game, 100 lb.....	75	60
Hens, each.....	75	60
Snipe, 100 lb.....	75	60
Quail, 100 lb.....	75	60
Pigeons, 100 lb.....	75	60
Hares, each.....	40	50
Rabbits, tame, 100 lb.....	75	60
Wild, 100 lb.....	75	60
Squirrels, 100 lb.....	75	60
Beef, tend, 100 lb.....	20	25
Sirloin and rib.....	18	20
Round, 100 lb.....	18	20
Smoked, 100 lb.....	18	20
Pork, rib, 100 lb.....	12 1/2	15
Chops, 100 lb.....	12 1/2	15
Veal, 100 lb.....	12 1/2	15
Lamb, 100 lb.....	12 1/2	15
Mutton, 100 lb.....	12 1/2	15
Leg, 100 lb.....	12 1/2	15
Lamb, 100 lb.....	12 1/2	15
Tongue, beef, ea.....	12 1/2	15

POULTRY, GAME, MEATS, ETC.		
Tongue, pig, ea.....	12 1/2	15
Beef, 100 lb.....	12 1/2	15
Ham, 100 lb.....	12 1/2	15
Choice of D. field.....	12 1/2	15
Whitaker's.....	12 1/2	15
Johnson's.....	12 1/2	15
Salmon, 100 lb.....	12 1/2	15
Smoked, new.....	12 1/2	15
Smoked, old.....	12 1/2	15
Rock, 100 lb.....	12 1/2	15
Kidney, 100 lb.....	12 1/2	15
Perch, 100 lb.....	12 1/2	15
Trout, 100 lb.....	12 1/2	15
Smelts, 100 lb.....	12 1/2	15
Herring, fresh.....	12 1/2	15
Smoked, 100 lb.....	12 1/2	15
Tomcod, 100 lb.....	12 1/2	15
Terrapin, 100 lb.....	12 1/2	15
Crabs, 100 lb.....	12 1/2	15
Shrimp, 100 lb.....	12 1/2	15
Sea Bass, 100 lb.....	12 1/2	15
Halibut, 100 lb.....	12 1/2	15
Sturgeon, 100 lb.....	12 1/2	15
Oysters, 100 lb.....	12 1/2	15
Chesep, 100 lb.....	12 1/2	15
Turbo, 100 lb.....	12 1/2	15
Soft Shell, 100 lb.....	12 1/2	15
Shrimps, 100 lb.....	12 1/2	15

POULTRY, GAME, MEATS, ETC.		
Tongue, pig, ea.....	12 1/2	15
Beef, 100 lb.....	12 1/2	15
Ham, 100 lb.....	12 1/2	15
Choice of D. field.....	12 1/2	15
Whitaker's.....	12 1/2	15
Johnson's.....	12 1/2	15
Salmon, 100 lb.....	12 1/2	15
Smoked, new.....	12 1/2	15
Smoked, old.....	12 1/2	15
Rock, 100 lb.....	12 1/2	15
Kidney, 100 lb.....	12 1/2	15
Perch, 100 lb.....	12 1/2	15
Trout, 100 lb.....	12 1/2	15
Smelts, 100 lb.....	12 1/2	15
Herring, fresh.....	12 1/2	15
Smoked, 100 lb.....	12 1/2	15
Tomcod, 100 lb.....	12 1/2	15
Terrapin, 100 lb.....	12 1/2	15

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MAY 30TH.

MACHINE FOR PRODUCING STEREOTYPE-MATRICES.—Robert E. Draper, Sacramento, Cal.

ENDLESS WIRE-ROPE WAY.—Andrew Smith Hallidie, San Francisco, Cal.

ENDLESS WIRE-ROPE WAY.—Andrew Smith Hallidie, San Francisco, Cal.

METALLIC PACKING FOR STUFFING-BOXES.—Albert H. Hall and Theophilus Locher, Sacramento, Cal.

LAMP.—Marks Samuels, San Francisco, Cal.

DESIGNS.
CENTER-PIECE.—Samuel Kellett, San Francisco, Cal.

CENTER-PIECE.—Samuel Kellett, San Francisco, Cal.

The First Telegraphic Instrument.

An interesting relic of the early days of telegraphy has, it is said, been discovered at Morristown, N. J. It is the first instrument by which messages were received and sent by the aid of the electric current. When Professor Morse was experimenting on the power and capability of electricity as applied to the transmission of words, he spent a large portion of his time at Morristown, where he was assisted by Alfred Vail, Esq., a practical machinist and inventor. At the Speedwell iron works of that town, then owned by the father of Mr. Vail, the experiment on the wires and on the construction of suitable instruments took place. "On the completion" of the experiments and the removal of Mr. Morse to Washington to bring his invention before Congress, Mr. Vail accompanied him, and, receiving the appointment of assistant-superintendent of telegraphs, was stationed at Baltimore at that end of the experimental line. The instrument now at Morristown was one of two taken from Morristown by Morse and Vail—Morse using one at Washington and Vail the other at Baltimore. The first message sent was the now well-known, "What hath God wrought," which Morse transmitted to Vail; but the first public message was the news of the nomination of Polk to the Presidency, by the Baltimore convention of 1844, sent by Vail to Morse. These instruments were in constant use for six years, when Mr. Vail, returning to Morristown, brought his with him, and where it has since remained in the possession of his family. Mr. Vail dying soon after, his instrument was specially left, by a clause in his will, to his eldest son as an heir-loom, while parts of instruments made during the experimental trials were left to Prof. Morse, with a request that he would give them at some future day to the New Jersey Historical Society. The old instrument works as well as when first made, and Saturday a message was sent to New York, and a reply received at Morristown. An excellent photograph of the instrument was also taken, and with it a visit was made to Prof. Morse, in New York. The professor was delighted to see the representation of the first instrument, having destroyed, as he said, the fellow instrument which he had used in 1844. He readily recognised it, and wrote a certificate across the picture as to its being a true photograph of the first instrument ever used to transmit public messages. He also expressed a wish that

the photographs might be generally distributed, that it might be seen how little, in essential points, it differed with those now in use. With the exception of size and clumsiness, the instruments are almost exactly similar. The dimensions of the instrument are sixteen inches in length, seven inches in height, six inches wide, with two magnets of three-inch diameter. The paper used was two and a half inches in width, three pens being proposed to be used. The weight of the instrument is twenty pounds. —*Ex.*

Editorial Notes Eastward.—6.

Desert, Lake and Mountain.

I awoke in the morning in a new region. In the night we had passed from the grand Sierras, had run along the beautiful

and its waters, at first pure and sweet, are said to become brackish and impure as they roll on.

Humboldt forms an oasis in our desert. At Mill City we are reminded of a proposed narrow-gauge road to the mining town of Unionville. Winnemucca, we are told, was once a stirring, hustling "stamping ground," and beyond it we meet a relic of its former times, the Humboldt Canal. Battle Mountain is an important point, if for no other reason to the traveler than as being an eating station. Beyond Beowawe, the Maiden's Grave, denoted by a cross, is pointed out to us, and the end story is told of the young girl fading away on her westward journey. And so we

all places of interest in and about it. We extract from the introductory remarks, the following description of

A Trip into the Country.

What is it? Well, perhaps the cure of a cold, the roasting out of a rheumatism, the pasting up of tattered lungs, one more ehuffle for life; perhaps an escape from odorous offices, ugly rows of figures, stagnations and lawsuits; an armistice, perhaps, in home affairs, a pause of the treadmill, a shifting of position, a momentary stillness in the storm; a brief escape, it may be, from arbitrary affection, from tintured sweetness, from loves abrasions; perhaps it is a packing up of fitting heart-treasures, the wooing back of a gentle life; the last stake, which, when lost, leaves, in place of sweet fulness, a long, deep, noisome cavern.

But what is it? It is a towel after a bath, a thawing out of the eye-tem, oceanic distillation, extraction of neuralgia, physiologic solar lubrication; a coming out into broad sunlight and soft air; amid the ringing songs of birds; the music of brooks, and sweet flowers; out into the wild woods, over foaming streams, and out upon smooth lakes. It is taking a glance upward, a slipping of the fetters, a flash of the spirit into unwonted regions, a square look into the past and into the future. It is a renewal of the lease for another year, an extension of time on the part of our common creditor.

This book is furnished at the very low price of 75 cents. It will be found an invaluable requisite for tourists in California.

NEW MAP OF CENTRAL CALIFORNIA; Revised and Enlarged by A. L. Bancroft & Company, San Francisco.

As an accompaniment to Bancroft's Tourist's Guide to "The Yosemite and Around the Bay, South," and "The Geysers, and Around the Bay, North," we have here a revised and enlarged map of the central portions of the State, embracing all the railroads completed, or in early contemplation, and showing distinctly the great routes of travel described in the Guide Books above cited. Strangers and others in California will find this a very complete and perfect pocket map of all the central portions of the State. Price 75 cents.

PLASTICITY OF ROCKS.

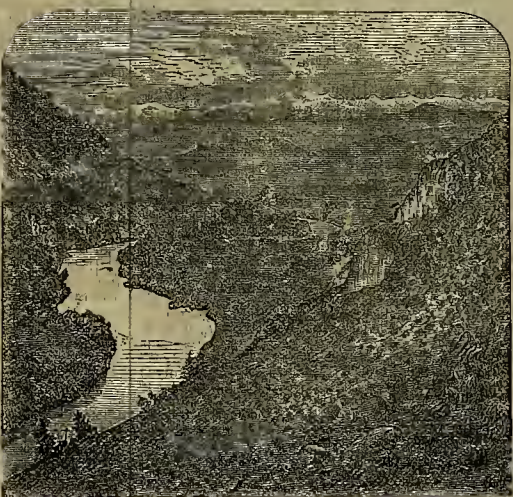
The old cobble-stone pavement in Waverly Place, between Broadway and Mercer street, being now in process of removal, my attention has been drawn to the forms of the stones, especially the harder ones, quartzites, etc. The coarser granulated paving stones have generally crumbled, but the compact stones have been modified—convex surfaces in one case fitting into concave in another; none of them retaining a normal form. Now, although the crown of these stones has been worn by the attrition of constant and heavy travel, no such wear can have taken place on their perpendicular surfaces, and I am therefore convinced that they have been molded into one another by pressure only. On conversing with the workmen, they all concurred as to the fact, and the foreman stated that his attention had been called to it before. Very probably I am myself only repeating what is already well known to others.—George Gibbs, New York.

Quite a number of distinguished foreign personages are at present sojourning in this city.



TRUCKEE RIVER.
276 miles from San Francisco—Altitude 6,100 feet.

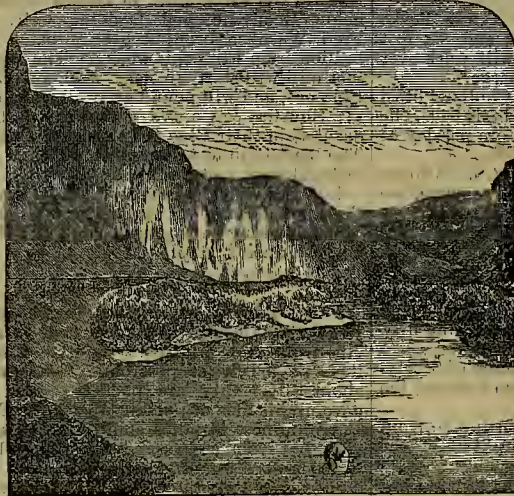
Truckee river (the pride of Nevada and justly esteemed most highly) for some sixty miles, had crossed this stream no less than five times, had left the noble trees and the bounding river behind us. Peeping out of my sleeping-herth window, my eyes met the sun appearing above the mountains east of the "Great Sink of the Humboldt." These mountains were set in deep blue, the near hills shadowed with brown. The waters of the lake at that



TRUCKEE RIVER.
276 miles from San Francisco—Altitude 5,044 feet.

instant appeared mirrored with silver with gleams of gold, and beautified with lively colors, with the many harmonizing hues of Nature's grand morning scenes o'er mountain, desert and lake. Probably this view is a rare occurrence, for here I expected to see only a tameless slough and a weary desert.

But we find another companionable stream, the Humboldt, largest and longest of rivers in Nevada, our traveling companion for two hundred and fifty miles. We traverse with it a dry and sterile land, which it lightens up, however, here and there with shrubs and grasses. But our friend is said to degenerate as it advances,



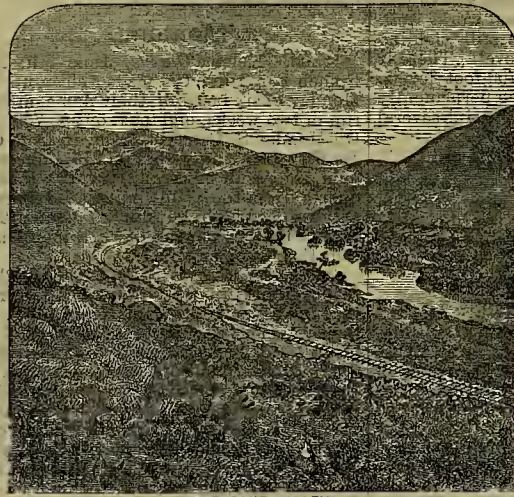
ENTERING THE PALISADES.
270 miles from San Francisco—Altitude 4,800 feet.

travel on through the morning and noon, and find points of interest, pleasing flow-ers, in our desert, and come to Palisade.

New Publications.

BANCROFT'S TOURIST'S GUIDE.—The Geysers, San Francisco and around the Bay, North San Francisco. A. L. Bancroft & Co., 1871.

This is a neat little duodecimo volume of 220 pages, which provides a complete key to one of the most attractive and won-



PLEASANT VALLEY.
300 miles from San Francisco—Altitude 4,500 feet.

derful spots of all the wonderful localities in California, and one which, when properly known, will become one of the most popular resorts for tourists upon the Pacific Coast. Nowhere in this State can so much be seen in so short a time or in so short a distance of travel, as in and about Calistoga, the Geysers, Clear Lake, etc. The book before us furnishes a complete guide to and through all these localities, as well as full descriptions of the Napa, Santa Rosa, Petaluma, Sonoma and Russian river valleys. It also furnishes a short historical sketch of San Francisco, a topographical description of the city and its surroundings and a complete guide to

POPULAR LECTURES.

Deadly Weapons and Fire Arms.

[Prof. WELCKER before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

LEC. II., June 10. There was the usual large attendance of students and others on Saturday evening last, to listen to Prof. Welcker's lecture, giving an historical resumé and descriptive account of deadly weapons of all sorts, ever devised, including fire-arms, down to their recent most effective improvements in the Henry and Winchester rifles. Amongst the distinguished visitors on the dais, we noticed Governor Haight.

Slings, axes and swords, ending with the bow, embraced the whole subject as gone over, down to the times of the early colonists of America, who must have used the bow largely. In the use of the sling the inhabitants of the Balearic Islands are historically accredited with great reputation for expertness; and the English were the most famous bowmen; a man who could not put a dozen arrows into a ten inch plank in two minutes was no bowman at all. The point which gave archery its grand priority was the invention of the feathered end directing truly the weighted point. The sworded Roman soldiers under Julian found the Parthian archery terrible to encounter. The cross-bow was a great improvement; it was introduced into England by Count de Leon, and serving to defeat the Saxon archers, became the instrumentality of the formation into the existing character of the English language. Lead at the point of a bolt was the incipient bullet. One chief defect of the cross bow in warfare was the fact that it spread the men apart so as to make a body so armed less effective against cavalry; hand-arms continued, accordingly, to be most valued. The bucklers, cuirasses and mailed clothing hitherto worn by both infantry and cavalry, were dispensed by the introduction into warfare of

Fire Arms.

Various names, such as bombard, etc., were given to the same weapon, a gun barrel mounted on a trestle, weighing 25 to 70 lbs., and operated by two men. It had a decided effect, as nothing could withstand them; in 1330 they were in general use. Even as long ago as that breech loading cannon came into common use, but they were not efficiently secure from accidents and were rejected as too dangerous to the owner himself.

[The lecturer here gave several diagrams on the blackboard showing the early manner of mounting and serving such guns as were too heavy to be worked without supports; but the time is too short to have them engraved, in season for our present issue.—EDS. PRESS.]

From these the step was simply to the use of a mechanical match holder, whereby the gunner could fire more accurately by simply touching a trigger.

And from that to the Nuremberg wheel and flint lock, and the very greatly improved modern flint lock that existed down to our own early days.

Short-hand guns were made in the town of Pietor in Tuscany; hence *pistols*.

Rifled arms were known as early as the 15th century; and the sling and cross bow were themselves not abandoned until 1560; the English clung to the bow until 1427, on account of their expertness in its use. It took some time for the flint to push out the match lock.

The first and second ranks were now armed with pikes, and and three or four ranks behind them were armed with muskets; afterwards three ranks in all were in vogue, bayonets displacing the pikes. In the U. S. there are now but two ranks.

Gustavus Adolphus, of Sweden, the hero of the Reformation wars increased wonderfully the rapidity of fire by inventing cartridges; and Forsythe, an English clergyman, added percussion caps. The latter rendered the bullet of the rifleman much more certain, prompt, accurate, and powder practicable in any weather, even in the heaviest rain. The fulminating material which creates the spark is made of two parts mercury and one saltpetre; a

compound having the peculiar characteristic of exploding when struck with the hammer.

The problems of increased range, rapidity of fire, and increase of accuracy were vigorously worked upon by numbers of ingenious men—aiming to strike the enemy more surely further off, and more frequently, until the accurate weapon developed in America and known as the American rifle, culminated in the Miuie, the Needle, the Chassepot, the Henry and the Winchester weapons; involving much scientific acumen in such problems as the burning of all powder, or the prevention of windage by means of patches, expanding balls, etc.

The conical ball was brought to the accuracy of direction of the feathered arrow by means of grooves at the back end, which were taken hold of by the atmosphere in such a manner as to push the deflecting stern always back into the true axis of flight; without this the terrible conical ball would be subject to failure.

Colt in this country, and Adams in England, adopted revolving arms; and amongst the repeating rifles, the Spencer, invented in 1860, has a magazine for seven cartridges, and the Henry, 1862, for fifteen. The latter fires 30 times a minute without haste, viz.: twice as fast as the Spencer, and six times as fast as the Prussian Needle-gun. The Winchester is an improvement, in practical points, upon the Henry, was unanimously adopted by the Swiss board of experts on arms as against all others invented; and may be used as an ordinary single-shot breech-loader, with a reserve at hand of fifteen shots whenever required.

The Pyramids of Egypt.

Among the seven wonders of the world have usually been counted the pyramids of Egypt, but, from late investigations by Mr. Piazza Smyth, several of the popular ideas concerning them appear to have been erroneous. He regards the Great Pyramid of Cheops as the oldest monument in Egypt, while the other pyramids were built afterwards. This is also the largest and finest, and the only perfect one in architectural design and execution. Nothing has been constructed during the 4,000 years since it was completed that can vie with this colossal pile. Even our largest and finest specimens of architecture are inferior in height to this ancient relic of the Nile. St. Paul's church, in London, is 360 feet 2 inches high; St. Peter's, at Rome, 432 feet; Strasbourg Cathedral, 468 feet; while the Great Pyramid is between 435 and 495 feet in height.

The pyramids in general are supposed to have been built by successive generations, each layer of the masonry answering to the reign of a king; but that of Cheops is probably an exception to this rule, for it is uniform in its architecture and building materials. Mr. Smyth says it must have been built from carefully prepared plans, and the whole structure was completed by its founder after hard labor for twenty years. Mr. Smyth does away with the old theory that the Great Pyramid was intended for a tomb.

The burial chambers of the old Egyptian kings were nothing but whole suites of apartments, gorgeously carved and inscribed with emblems of self-glorification. But the one pyramid of all, in which we should expect to find the most elaborate of these inscriptions, is entirely lacking in them, and it contains only plain geometrical surfaces of exquisite workmanship, the stones ground to true mathematical figures, with joints inconceivably fine, and thin as tissue paper.

Instead of its being founded on the alluvial mud of the Nile, as is generally supposed, the Great Pyramid is discovered to rest on a "hill of compact limestone, at a level of about 100 feet above the alluvial soil of Egypt, and to one side of it." Moreover, a curious fact is, that the stones in the British Museum, supposed to have been taken from this pyramid, have been found by careful measurement of their angles of slope, and comparing them with the original structure, to have never belonged to that famous building.

CONDENSED soda water is the latest novelty. It is put up in boxes, containing material for 16 glasses of as pure soda water as can be drawn from any fountain. The powder is charged with gas, sweetened and flavored with pine apple, etc., ready for use.

GOOD HEALTH.

Pork and Alcohol Bad for Consumptives.

EDITORS PRESS.—It has long been known in the highest scientific circles, that two, at least, of the ingredients that go to make up the diet of two-thirds of the people are entirely inadmissible in all pulmonary difficulties—viz.:—Pork in one shape or another, and alcohol. I do not propose to enter into any lengthy dissertation, but simply give some facts in my experience that bear upon the point.

In 1861, while on my way across the Plains with my family, bacon was our main stay; but losing the larger part of our team near Green River, we were compelled to abandon the heavy wagon and the largest part of our stock of bacon, so that by the time we reached great Salt Lake City, it was all used up. It was well; for by that time a bad humor caused festers to appear at the roots of the nails, so that they all came off; and otherwise endangered the general health, to such an extent that I was not at all sorry that the bacon was gone. From that time until the present, I have not used ten pounds of pork or lard, and no appearance of the return of the disease has been manifested, my general health has continued steadily to improve until, physically, I am an entirely different person from what I was under the pork regime.

Now about alcohol; and in speaking of that stimulant, I might include most others of an ultra nature; especially those that have an undue action upon the heart. I have always noticed an increased tendency to cough where they were used. The mechanical conditions violated by any introduction of like stimulating substances into the system, must be obvious when we consider that an increased action of the heart only increases the difficulty by throwing more blood to the lungs than they, in their weakened condition, can either oxygenate or expell, causing of, course congestion and consequent irritation in that much abused organ.

By what mode of reasoning one can arrive at a conclusion that benefit can be derived by the introduction of almost pure carbon, to increase the labor of an already outasked organ, I am at a loss to perceive. Every one knows that the carbonaceous matter in pulmonary difficulties is not deposited in the shape of fat, or at least it ceases to have that tendency in the latest stages of the disease. What then becomes of it? it certainly is not eliminated by the lungs. The only conclusion we can come to is that it returns in the circulation to add obstruction and inflammation; where there should be an opposite tendency. How long will the thinking world submit to be humbugged by eopisms a child might laugh at?

To get well, if one has a tendency to a pulmonary or you might add any other disorder; it is only necessary to weave the tissue of our organisms out of proper material so that it will not tear! and abandon the use of those narcotic and stimulating substances that tend either to lethargy or unnatural activity. F. M. SHAW.

San Diego South, Jan. 22d, 1871.

Wearing Flannel.

In the climate of San Francisco, and wherever the cold sea breezes prevail during the summer, flannel ought always to be worn. If the ladies, especially the young ladies of this city, could be induced to regard the laws of health in this particular, many precious lives might be saved; but pasteboard soles, low-necked dresses and lilliputian hats are pretty sure to sow the seeds of a fatal harvest. The suggestion in the following paragraph from the *Scientific American*, if followed, might save much sickness and suffering, and not a few from untimely graves:—

Put it on at once. Winter and summer, nothing better can be worn next the skin than a loose red woolen shirt; 'loose,' for it has room to move on the skin, thus causing a little tillilation which draws the blood to the surface and keeps it there; and when that is the case, no one can take cold; 'red,' for white flannel fills up, mats together, and becomes tight, stiff, heavy and impervious. Cotton-wool merely ab-

sorbs the moisture from the surface, while woolen flannel conveys it from the skin and deposits it in drops on the outside of the shirts, from which the ordinary cotton shirts absorb it, and by its nearer exposure to the air, it is soon dried without injury to the body. Having these properties, red woolen flannel is worn by sailors in the midsummer of the hottest countries. Wear a thinner material in summer.

Necessary Rules for Sleep.

There is no fact more clearly established in the physiology of man than this, that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep. If the recuperation does not equal the expenditure, the brain withers—this is insanity. Thus it is that, in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs; thus it is also that those who are starved to death become insane, the brain is not nourished and they cannot sleep.

The practical inferences are three: 1st. Those who think most, who do the most brain work, require the most sleep. 2d. The time "saved" from necessary sleep is infallibly destructive to mind, body and estate. 3d. Give yourself, your children, your servants, give all that are under you, the fullest amount of sleep they will take, by compelling them to go to bed at some regular, early hour and to rise in the morning the moment they wake; and within a fortnight, Nature, with almost the regularity of the rising sun will unloose the bonds of sleep the moment enough repose has been secured for the wants of the system. This is the only safe and efficient rule; and as to the question how much sleep any one requires, each must be a rule for himself—great Nature will never fail to write it out to the observer under the regulation just given.

Disease and Carelessness.

There can be no doubt that carelessness is the origin of most diseases. Medical men also hold that foolish people who follow their own whims have hardly a chance of recovery when visited by serious disease. Nine-tenths of the doctor's work would be done if people were only consistently prudent and cautious. Only it is so hard to be habitually cautious. On abundant occasions a man may be most elaborately prudent, and then, to his utter astonishment, he dangerously imperils his health by some startling impropriety. When he has used every imaginable pains he is always amenable to the force of accident. There is another plausible theory, antagonistic to the one we have named, to the effect that every man has the seeds of some particular disease in his constitution, and some trifling accident will come, sooner or later, which will have for him the same effect as a match falling upon gunpowder.

Medical men explain this on theories of constitutional tendencies or of some poison latent in the system. The fatal accident to one man is the merest accident for another. Two men while walking get well soaked by the rain. One man shakes off the water pretty much as a dog or a duck might do, and rather enjoys his shower-bath than not. Another man is taken ill of inflammation of the lungs, and probably dies. The doctors cannot explain the different issues, and they would also be very much puzzled to give a satisfactory account of the pneumonia itself. They will, indeed, generally explain theories more or less plausible, and practice has been built upon theory, and theory has, no doubt, sacrificed a number of lives. Yet medicine must have its dogmatic system, and without it medicine becomes little better than empiricism.—*London Society*.

OPPOSITION TO VACCINATION IN INDIA.—The natives of the Northwestern Provinces of India objected to vaccination for the following reason:

'They believe that a native child is to be born whose destiny it will be to drive the English out of India and then to conquer the world. This child is to be distinguished from other children by having milk, instead of blood, in its veins. The natives believe that, by vaccination, the English are seeking to discover the wonderful infant, so as to imprison or kill him.'

WIND IN THE STOMACH.—A physician, in a very sensible article, on bathing, recommends a more general use of warm baths instead of the syrups and worse nostrums for the wind in the stomach, which is thought to be so often the cause of the worrying restlessness of very young children.

Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY,..... GEO. H. STRONG,
W. B. EWER,..... JNO. L. BOONE,
Office, No. 414 Clay St., below Sansome.

Subscriptions payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$5 each per annum.

NEW YORK OFFICE: Room 25, Park Row. W. E.
Partridge, Editorial and Business Correspondent.

San Francisco:

Saturday Morning, June 17, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, June 14, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
112½.

Table of Contents.

American Locomotive Engines, Ill.; Natural Gas; Norton's Door and Gate Springs.....	369
MECHANICAL PROGRESS—The "Woolwich In- fant," Terra Cotta; A New Lathe; New Sounding Apparatus.....	370
SCIENTIFIC PROGRESS—A New Connection for the Induction Coil; Ozocerite; Action of Heat on Protoplasmic Life; Phosphate Pro- cess for Utilization of Sewage.....	370
Wastage of the Precious Metals; The Sanitary Effects of Coal Oil Questioned; The Great Valley of Los Angeles; Banner District.....	371
MINING SUMMARY—Mining Stock Market; Shareholders' Directory; Market Rates, etc.....	372, 373
Patents and Inventions; Editorial Notes East- ward.....	374
Deadly Weapons and Firearms; The Pyramids of Egypt; Pork and Alcohol bad for Con- sumptives; Wearing Flannel.....	375
Industries, Employment and Business; What Becomes of the Sulphur Used upon the Grapevine; The Cochineal Insect.....	376
Water Regulator for Water Closets, Ill.; The Late Geo. Peabody, Ill.; Practical Science at Harvard.....	378
Domestic Economy; Domestic Receipts; Me- chanical Hints; Life Thoughts.....	378

The Audience and the Lecturers at the Mechanic Arts College.

Prof. Welcker at the conclusion of the last lecture (on weapons) before the Mechanic Arts College, said: Before I leave the stand, ladies and gentlemen of the Mechanics Art College, I desire to thank you very heartily for the patience and courtesy with which you have listened to my discourses heretofore. My colleagues who have preceded me in this series of lectures have spoken unanimously of the very agreeable conduct of this audience. Some of them have stated that they have addressed audiences upon similar subjects in almost every part of the Union, and they have never anywhere met with such respectful attention; in short, that they never have had so good an audience as they had found in the students and visitors of the Mechanics Arts College in San Francisco. [Applause]. Now these gentlemen here have addressed you upon subjects which in themselves are of the highest interest, and of interest to everybody; and if they have occasion to remark this, much more have I.

I do not flatter myself that the remarks which I have made here have had sufficient interest to enchain your especial attention; but accepting it as a deliberate test of your courtesy and good breeding, I thank you very heartily. [Applause].

THE NEXT HORTICULTURAL EXHIBITION, which will come off in August next, in connection with the Mechanic's Institute Exhibition, will eclipse anything of the kind yet seen on this coast. As the exhibition will be continued four weeks, instead of one, the usual length of such exhibitions, and will consist in a large measure of perishable articles, it will require much labor and sacrifice to keep it up through the term; but we doubt not the necessary public spirit and sacrifice will be found among those who have the means to furnish the material.

OUR TRAVELING AGENT, Mr. W. H. Murray, now on his way back from the Atlantic States, will spend a few weeks among our friends and patrons in Colorado and Salt Lake.

Industries, Employment and Business.

A look through the Mission Woolen Mills, and a call at one or two of the foundries, suggest points expressive of "the situation" of life and business in the West. Labor on the Pacific is now at a par with that of the East, no higher in the average, and no lower; by which remark we do not mean skilled white man's labor alone, but skilled and unskilled white man's and Chinese alike. The fact is proven by the history of the woolen mills. The two in this city have been running uninterruptedly for eight years and are running at their full capacity to-day. The Mission Mills employ 400 hands altogether, and the money paid on labor account is as near that for equal products in the East as can be, low enough in comparison to warrant the dictum that there is "no difference," which means in this connection that with the Chinese here the sum total may be even a little lower. Boys and girls, wages are the same, but expert white hoes and masters in the trade get about \$1 a day more here than they do in the East.

In such enterprises as the reclamation of swamp lands by ditching an example of the influence of the presence of the Chinese is seen in the offering of the contract by Dr. Toland on Friday last for 4½ miles or 163,000 yards of leveeing at Collinsville; the contract being taken by a Chinese company at \$20,000 which was \$6,000 less than any bid for white labor; or say 11½ cents per yard after allowing \$1,255 as a margin for incidental expenses and profits.

After all the talk about woolen mills, there are only five in the State—the Mission, North Beach, Merced, Marysville and Sacramento—of which all but the last have been running successfully and constantly from their completion; and the failure of the Sacramento mill is attributed to loose calculation and management. The fact that the same wool—the staple having risen 50 per cent. this year, from eastern or general causes, cost the Mission mill \$180,000 for last year's consumption, and \$300,000 for this, without disastrous effect, proves the soundness of industries of the sort on the coast.

It should be understood that traders—the Jews principally—always prefer to sell eastern goods of every sort at less profit, arising from their trade connections, in which they share with the eastern or European producer the profits of the cheapest labor, and of speculations in the market.

In hoot and shoe manufacturing, co-operation has been applied, since the disagreements between employers and employes about two years ago. The importation of men's eastern-made hoots—chiefly Benkert's, of Philadelphia—has been reduced one-third or more within two years, on account of goods manufactured in this city. The importation of eastern-made woman's gaiters has declined fully 50 per cent. within the same time, the home article being preferred, both as to price and quality, to the gaiters of Atlantic manufacture. The workmen make better wages here than are paid by the leather lords of the hoot trace in Lowell and other Atlantic cities, while flour, vegetables, meat and other mainstays of physical life, are both cheaper and better here than the workmen of the East are accustomed to.

In the iron works the freezing aspect of the past two years is nearly gone. Always the best key to healthy or unhealthiness of business life and individual prosperity, we see that with a greater plenitude of general orders everywhere at the Empire Foundry there is a beginning in the manufacture of portable ranges and stoves, a business heretofore deemed entirely impracticable here in consequence of the dearer labor; the freight on a stove via Cape Horn being but a trifle. At the Miners' Foundry, which suffered in our late "dullness" with so many other of the most meritorious establishments, co-operation has

solved all difficulties as it even will in lieu of a reluctance capital.

In printing, without stopping to more than allude to the two leading co-operative firms, male and female, one fact is indicative of the times—that the excellently manufactured value of Bancroft's Tourists Guide north of the Bay, of 227 pages 12 mo. could be gotten out and sold here, and now for 75 cents.

The fields for labor are the fields where the capitalist's dividends are paid; and while it is well understood that our capitalists are generally capitalists from their talent for "holding on" to what they have gotten by good fortune, rather than by reason of their shrewdness, the limits of the present article do not permit of any comment upon the unoccupied fields.

Farming is usually considered the most easy, ready, sure and profitable in the end to those without capital. Farming must have its market, and without cheap transportation for small articles in the local markets, or without local markets, farming becomes either planting, or hibernating, and has serious drawbacks. Farming in the far west is not so easy to begin and carry on successfully without considerable capital, as it is in the Mississippi west.

On the subject of speculation, an old and new York business man makes the following hypothetical table, estimating the chances on ten year's active use of brains and capital in the chief sources of speculation extant, omitting speculative mining:

Start fifty educated business men, twenty-five years, and supply each of them with \$20,000 to use for ten years, and at that period to report their actual position. The probable returns would be:

In stocks—One man at the end, would be worth \$200,000; two men, about \$40,000 to \$50,000; two men, about \$20,000 to \$25,000; forty-five men bankrupt.

In grains and western produce—One man, \$100,000, one, \$75,000 to \$80,000; three, \$50,000 to \$75,000; five, \$40,000 to \$50,000; ten, \$25,000 to \$30,000; ten, \$10,000 to \$20,000; twenty men bankrupt.

In cotton—One man \$150,000; one, \$100,000; one, \$75,000; five, \$40,000 to \$50,000; three, \$30,000 to \$40,000; ten men, \$5,000 to \$10,000; twenty-nine men bankrupt.

In sugars, teas, and foreign produce; one man, \$150,000; one, \$125,000; one, \$100,000; three, \$60,000 to \$75,000; five men, \$40,000 to \$50,000; four men, \$30,000 to \$40,000; ten, \$20,000 to \$25,000; ten, \$10,000 to \$15,000; fifteen men bankrupt.

In real estate (the writers own choice after failure in everything else), one man would, at that period, be worth about \$200,000; two men, \$150,000; five, \$100,000; ten, \$50,000 to \$75,000; ten, \$40,000 to \$50,000; ten, \$30,000 to \$35,000; ten men, \$10,000 to \$15,000; two men bankrupt.

A similar table in regard to more legitimate productive industries, not excepting legitimate mining, may be made by anybody for himself.

What Becomes of the Sulphur Used upon the Grape Vine?

This question has been answered by Prof. C. Wideman, in the New York *Journal of Applied Chemistry*, who says that recent analyses of the soil taken from the foot of vines which have been treated with powdered sulphur, shows that the sulphur so employed, after performing its office of warding off disease to the leaves, falls to the ground, and unites with the lime there to form sulphate of lime—gypsum—the substance now so highly recommended for its fertilizing or rather irrigating qualities. This sulphate of lime has been found at a depth of fully three feet from the surface, and under circumstances where no other probable origin can be thought of. The transformation is thought to take place within a period of one month from the time of putting the sulphur on the vines. This important fertilizing result affords an additional reason for the use of sulphur on the vines, and wherever else it may be of use in destroying insects or disease. The formation of the sulphate of lime is found to be more active in well manured vineyards than in those free from decaying organic matter.

Exhibit at the Fairs.

Very few persons appreciate the benefits derived from exhibitions at our industrial fairs. If you are a manufacturer you can advertise the goods manufactured in no other way so advantageously and economically as by exhibiting them at our State and County and Mechanical Fairs. At these exhibitions people see samples of your workmanship, and judge for themselves of its quality. They learn your place of business, become acquainted with you or your assistant in attendance, and when they want anything in your line they remember you as a reality—as a person who can supply their wants, and the result is, you get their order and custom.

Having been long connected with the State Agricultural Society and its fairs, at Sacramento, and with the Mechanic's Institute, and its fairs in this city, we speak whereof we know. Persons often speak to us of the benefits they have experienced by exhibiting their products at this or that fair, and we could name many cases, in point. We will give but one now which has lately been brought to our attention.

The instance we have particularly in mind is of an artist—D. H. Woods, of Sacramento. One year ago he was almost without business. He had skill and taste as an artist, but he wanted an opportunity to show the public his ability and the real merit of his work. He saw that opportunity in the State Fair, and prepared several portrait and landscape paintings and placed them on exhibition. He was successful in being awarded but three out of many premiums distributed among the artists exhibiting. But he won the attention and approval of the people, and what is more, their patronage. He received orders at the fair for a large number of portraits, and he has not seen an idle day since that time. He has now over fifteen hundred dollars worth of orders for portraits in his hands, waiting his busy brush. Mr. Woods' exhibition at the fair this year will embrace portraits of some of the best and most celebrated stock on the Pacific coast—both horses and cattle. He is said to excel as a stock artist. We have no doubt other artists who exhibited at the last fair have been equally benefitted; but we only speak of what has come under our own personal observation.

THE COCHINEAL INSECT.—The following paragraph, which we clip from the *Atlas*, has an especial interest when read in connection with the paragraph on this insect, which we give in our issue of the 6th ult.: "Mr. A. K. Vanton, at present connected with the Central Pacific Railroad, in 1869, at Lancha Plana, in this State, collected, in a short time, more than an ounce vial of the real cochineal bug on the chemizel bushes which grow on the slopes of the Mokelumne river. He says that on that occasion he took them to an apothecary's shop, compared them with the imported insect, and found them to be in all particulars and essentials the same. If this be so, it is evident that, while no great quantity is as yet been discovered, the cochineal bug is a native of this country. We have no reason to doubt, in any particular, the statement of Mr. Vanton. If cochineal could in time be added to our other exports, the prosperity of the State would be greatly promoted. The resources of California, truly, would seem to be inexhaustible.

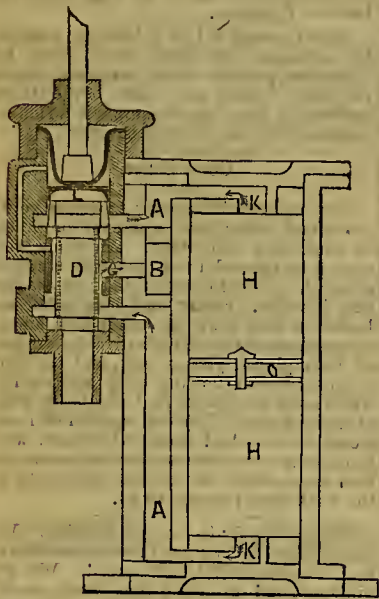
THE SWEET WATER MINES.—Mr. J. A. McAvoy, writes from South Pass City, of the Sweet Water mines as follows: "Here is what are known as the Sweet Water Mines. A few places have been worked out, but there is a plenty of quartz here—hundreds of ledges which will pay from \$5 to \$15, and a few which will pay from \$15 to \$100 and over per ton. The Carrizo is down 200 feet and improving. The Eng. Co. are just starting to drift 600 feet for the east extension of the Carrizo, where they expect to strike it 200 feet deep.

Water Regulator for Water Closets.

It is really remarkable to witness the treatment which the water closet receives at the hands of the public. If there is a handle to be pulled or a valve to be worked, that handle is pulled, or that valve is worked, with the greatest exertion of unnecessary force and the superfluity of violence imaginable by the majority of persons. The consequence is, that the affair is out of order a large portion of the time, and, besides the expense of repairs, there is a very noticeable waste of water,—an important item in this and other cities.

Various contrivances have been devised to prevent this waste of water, which is actually enormous in large cities, and to furnish the proper amount. But such a contrivance must not be complicated, for reasons implied above. The accompanying illustration shows a device which is claimed to accomplish the object in a satisfactory manner.

In the engraving, *H* is a cylinder; *D*, a valve connecting with the working lever of the water closed; *O*, a movable piston; *B*, a passage leading to the bowl; *A, A*, are passages from the cylinder, *H*, to the



chamber in which the valve, *D*, plays. The supply of water from the proper reservoir is admitted into this last named chamber through a part not shown in the cut.

The valve, *D*, is shown at its lowest position. The water from the reservoir is entering into the upper part of *H*, and forces the piston, *O*, down the seat at *K*, whence it cannot be removed without reversing the valve, *D*, and where it is firmly held by the pressure of the water above it. On reversing the valve, the water enters the lower part, *K*, and forces up the piston, *O*, until it reaches the upper seat, where it is held as before. At each movement of *O*, the water previously in *H* is forced out into the bowl; and no more can be forced into the bowl than just this cylinder-full. The pressure with which the piston, *O*, is held against either seat, renders leakage impossible.

The cylinder has the capacity of one-half gallon which is sufficient for the purpose. The valve is so connected that at each movement of the lever of the water-closet (or pressure on the seat) the valve is depressed, discharging one cylinder-full of water, and rises again with the same effect.

Those acquainted with the subject will at once perceive the usefulness and merit of this device. Steps have been taken to secure the inventor a patent for the United States and other countries. For further information apply to J. Marquis, architect, 328 Montgomery street, or J. Newsom, architect, corner Sacramento and Kearny streets, S. F.

The Late Mr. George Peabody.

The accompanying illustration, which we take from our cotemporary, the *Literary Journal*, is an excellent likeness of the late Mr. George Peabody, whose name is familiar in the mouths of all nations as a great philanthropist.

George Peabody was born on the 18th of February, 1795, in Danvers, Massachusetts, where his boyhood was passed. He learned reading, writing and arithmetic at the district school; but beyond those he was thrown upon his own resources, and the experience gained by being first a boy in a country store, then part proprietor of the same, was of the greatest value to him in after life. In May 1812, when the British invaders came sailing up the Potomac, he enlisted in the patriot army, and served a few months as a soldier. After the war he formed a partnership with a Mr. Riggs, and spent a large part of his time traveling as "drummer" for the firm. In this

black in the South; \$300,000 for museums of American relics, at Harvard and Yale Colleges; \$50,000 for a free museum at Salem; \$25,000 to Kenyon College; \$250,000 to the State of Maryland; and \$100,000 for a "Memorial Church" to his mother. Besides these public gifts, he distributed \$2,000,000 among various members of his family. Mr. Peabody refused a baronetcy and the Grand Cross of the Bath, offered to him by Queen Victoria, but received from her a grateful letter and a miniature portrait of herself, which he deposited in the Peabody Institute at Danvers.

In March, 1867, Congress passed a special vote of thanks to Mr. Peabody for his many large gifts to the public institutions of the country.

During Mr. Peabody's visit in America he became ill, and returned to England to consult his medical adviser, Dr. Gull, and to try a residence in the south of France; but that did not prove so beneficial as expected, and he returned to London. On



THE LATE MR. GEORGE PEABODY.

way he made a large business acquaintance in Pennsylvania, New York, Maryland, Virginia and other states of the South, so that in 1815, the house was established at Baltimore, with branches, at New York and Philadelphia. In 1830 when Mr. Riggs retired, Mr. Peabody found himself at the head of one of the largest commercial houses in the country. Throughout his life he maintained a character of great integrity, discretion and public spirit, though he never courted political honors, and kept aloof from party disputes.

He retired from the American house in 1837, and established the banking house of George Peabody & Co., in Warrford Court, London, where he acquired an enviable reputation for fair dealing and liberality, devoting himself largely to philanthropy. His private charities were very numerous, and the poor of London were his warm friends; but his public benefices are probably better known to the world. Mr. Peabody, during a three years visit to his native country from 1866 to 1869, gave \$2,000,000 for the education of whites and

the 4th of November, 1869, this good man breathed his last, and on the 12th of the same month, funeral ceremonies over his remains were held in Westminster Abbey. The Queen, the Prince of Wales, the Mayor and Sheriff of London, the American Minister, and other great persons joined in the procession to do him honor. The scene within the Abbey will never be forgotten by those present, who were fully impressed with the grand solemnity of the occasion. His coffin bore the following simple inscription:

GEORGE PEABODY, Esq.

Born 18 February, 1795.

At Danvers, Massachusetts.

Died in London, 4 November, 1869.

Mr. Peabody's wish to be buried by the side of his mother at Danvers was handsomely carried out by the English government, which detailed their war-vessel, the *Monarch*, for the special purpose of conveying his remains in state across the ocean to the home of his boyhood.

How his remains were placed in the old cemetery at Danvers, and what impressive ceremonies were held there are familiar to all our readers, and the name of George Peabody can never be forgotten until the world ceases to regard philanthropy as a virtue.

Practical Science at Harvard.

Amongst the series of the newly organizing departments of practical science, the numerous special professorship in which Harvard is of late taking the lead in this country, we are pleased to notice the appointment of Charles F. Hoffman of this city to the chair of Topographical Engineering.

This speciality belongs to the Engineering and the Mining Departments alike, the students of which are to be taken in charge of practically by Mr. Hoffman, and instructed by the usual lecturers in part, of course, but more particularly with a view to imparting the actual methods and details of topographical delineation in field and in office work; and the privileges here afforded will consist largely of field operations laid out for instruction in the several kinds of work in which the topographical engineer and geologist should become expert.

A course of four years is laid out for the engineering students, both in the Civil and Mining Departments; in the first year topographical drawing, and the principles of surveying; in the third year topographical surveying and field operations in part in connection with geological excursions; and in the fourth year, plotting and the working up of the field excursions.

Here are offered opportunities such as or even better than one would have on some public exploring expedition, or geological survey, or in the office of a busy engineer in high standing, with whom, however, inconvenient preliminaries, or an unreasonable apprenticeship, with too much devotion to the particular work that he may be best paid for doing, form drawbacks to the acquisition of the practice of topographical engineering, sufficient to have thus far restricted accomplishments and versatility in that most excellent branch to the few.

Simple indeed are the principles of topographical surveying, but the practices of note taking habits, sketching and the correct delineating of a country with often such opportunities that to the unpracticed could produce no survey or results at all, are things to be imparted by hand and by word of mouth—or to be thought out with infinitely greater labor and time.

Mr. Hoffman is an old Californian, having resided here since "early times," and gained a well deserved high reputation as civil engineer and topographer; having also been connected since 1860 with the State Geological Survey in the capacity of Chief Topographer. Like other of our best practical topographers, he served originally on the U. S. military exploring expeditions, with Gen. Lander, etc. His best works are the "Bay Map" of the Geological Survey, and the "Map of Central California" now in process of publication; besides the Comstock Lode in the Sutro Tunnel Volume, Mariposa Surveys, Yosemite Maps, etc.

To young men coming from or looking to our great unsurveyed empire of the West,—of mines and mountains,—no such privileges as are to be offered in the Harvard Topographical and Geological departments have been within reach heretofore, short of a journey across the Atlantic. It is to be hoped that no narrow policy of rigid examination will be set up to prevent the merest tyro, or any person or persons of middle age having tastes of this sort but rudely developed, from tarrying in Harvard, to avail themselves of any or all of its departments of practical science.

In the same connection we notice that Mr. William H. Pettee, who graduated at Harvard College, and the mining school at Freiberg, Saxony, has also received an appointment from Harvard University, as Assistant Professor of Mining.

IMPORTANT COAL DISCOVERIES are reported on one of the islands of the coast of Alaska. The coal is said to be superior to any yet discovered on this coast, and can be delivered here at six dollars per ton. If such is the fact, the discovery is most important and opportune.

DOMESTIC ECONOMY.

Ironing Made Easy.

Good ironing of clothes is a fine art, and is acquired by patient practice, and the habit of doing all work conscientiously. In families where there are young girls, there is often much nice ironing to do, and it should never fall to the mother's charge, but should be done by those who require it, except in cases where servants are kept for that purpose; and it is always well for young ladies to know how to iron in the best manner, even when there is no necessity for their doing it. Nothing more greatly facilitates the process of ironing than to have each one who irons possess her own ironing tools, such as holders, etc. In otherwise orderly families, I have seen young ladies catch up almost anything that was conveniently near, to hold irons with; often scorching valuable articles not suitable for the purpose.

Ironing Bags.

It will be found a great convenience for each ironer to have a bag, fifteen or eighteen inches square, suitably furnished, and used only by herself. It should contain an ironing-holder, of a size and thickness to suit herself. In the ironing-bags, there should always be a thin, soft-leaved pamphlet, for rubbing the irons upon, when first removed from the fire; do not use the covers. Keep in the bag also a nice, soft cloth of a light color, to finish off the iron with, also a light tin ring for resting irons upon. A mullin-ring is just the thing. Another smaller bag within the other should contain a small, white cloth for rubbing specks from starched clothes, and a soft, fine cloth for covering bosoms and collars if desired. It saves also much time and vexation to keep a wet towel near, to wipe the hands when starching, instead of rushing across a room to wash them while doing starched clothes.

Ironing Holders.

Are very essential, and should be made and kept with care. Those stuffed with sawdust are least heating to the hand. The sawdust should be made and thinly quilted into the holder; and to be just right, there should be two thin quilted holders stitched together, and then the cover put over both. Wood being a non-conductor, in a great degree, the hand is not so injuriously affected by heat as from the old-fashioned metal-handle and a common holder. A very good way is to interlay the holder with a few thicknesses of newspaper in the middle to make it lighter, and the hand will be less heated than if it is wholly made of cloth. Each ironing-holder should have one or two covers of white cloth or light calico made to fit nicely, and should be fastened on with buttons or strings; then, when one cover becomes soiled, it can be changed, and is far preferable to having several holders.

Ironing Boards.

One should have a small ironing-board for collars, cuffs, etc., a little larger than a handkerchief, and it should be covered with cloth and flannel. To the upper corners of the board a strong string should be nailed to hang it up by, and a calico cloth should be attached to the top, like the cover of a pamphlet, large enough to fall over both sides when hanging, to keep it from dust, and should be confined closely around the board by strings. With two such boards, two can iron at the same table without interfering with each other, or they could be carried to any part of the house, and save all the time usually lost by folding and putting away ironing things of large size, as blankets and covers, which are often put away in a hurried and disorderly way, to the vexation of the next one who goes to the ironing drawer or basket.

An Invention Wanted.

I wish some woman would invent a movable wooden handle for flat-irons, which could be easily adjusted on taking an iron from the fire. Some woman, whose husband is a blacksmith, and would make her models, perhaps might succeed.

These items may seem small and insignificant; but attention to them would save much time and trouble, and render an otherwise tedious process pleasant and improving to the ironers of the family, by cultivating habits of order and regularity, and a just regard for the comfort of others. We have taken the above substantially from the *American Agriculturist*.

NEW PROCESS OF PRESERVING MEAT.—A new process of preserving meat has just been perfected by Mr. Richard Jones. It

has long been known that meat preserved in tins by the ordinary process of heating in a chloride of calcium bath for a prolonged period, and then closing the orifice is surrounded by jelly, which, with most of its juice, has been extracted from the meat, leaving a tasteless and exhausted fibre. To obviate this objection, Mr. Jones exhausts the steam by a tube connected with a vacuum chamber, the meat being thus cooked with its juices left in their natural place amongst the muscular substances; while the whole process can be effected at a lower temperature than has been heretofore used, and with less injury to the flavor and appearance of the meat. It is estimated that meat can be prepared in Australia or New Zealand, including freight of tin plates, etc., freight home, and 5 per cent. commission for selling, at 2d per lb. for 6-lb tins, and about 2½ per lb for 4-lb tins.

FARMERS' WIVES.—If I had the ability I would like to write a plea for farmer's wives. They are not slaves to fashion and etiquette, as your city ladies are (poor creatures!) and they know something about toil and care and anxiety. But notwithstanding the grandeur, and glitter, and fascination of city life, I had rather be a farmer's wife and wear out in honest toil and labor of love, and gain my bread by the sweat of my brow, than to bow down to the goddess fashion, with her ridiculous flummies, and exhaust what few brains I have in studying etiquette, gentility and style. Better to spend our strength in useful labor while the hours pass swiftly by, than to be dying with ennui as many idle fashionable people are, not knowing what to do with all their time. Preserve me from walking on the "upper crust," feeling all the time that it may break and let me through! I would rather walk on the green grass with the bluesies over my head and feel that I stand on terra firma.—*Household*.

TO REMOVE "MOTH PATCHES."—In a late *Rural New Yorker* is an inquiry from M. L. P. for means with which to remove "moth patches" from the skin; and a reply advising to drink hard cider. Now it is the misfortune of many of your readers to live in sections of the country where cider can be had only at much expense and trouble; therefore I offer another, and I believe, sure remedy. Wash the patches with a solution of common bicarbonate of soda and water several times during the day for two days, or until the patches are removed, which will usually be in forty-eight hours. After the process, wash with some nice toilet soap, and the skin will be left nice, smooth and clear of patches.—*Rural New Yorker*.

A HOUSEKEEPER'S TRIALS.—A lady in giving an account of her trials on washing day, says: "I have only two servants and so have to dress the children and mind the baby, while a pile of sewing lays waiting in the workbasket." Ah! my sister, what would you do if you had to dress the children, get the breakfast, do the washing and perhaps make cheese or churn and no servant at all?

Thousands of women in the country have to do it, day after day, and year after year. There are vegetables to gather, plums to pick, wool to spin and weave and knit, apples to pick and dry, and sometimes her help is needed to rake hay.

A GOOD HELP-MATE.—The St. Paul Press publishes a private letter from a lady in the country, which shows that she "does her own cooking and baking on a farm that grows 2,000 bushels of grain, for a large family, including the voracious harvest hands, and who, in addition to all these severe domestic toils, raises with her own hands over three hundred varieties of choice flowers, doing all the laying out, digging, raking, hoeing and manuring herself."

NOW AND THEN.—An old negro woman, in accounting for lack of discipline among youngsters, insists that it is because their mothers wear gaiters. "You see, when we wore low shoes and the chillun' wanted whippin', we took off a shoe mighty quick and giv' 'em a good spanking," but now, how's a body to get a gaiter off in time? So the chillun gits no whippin' at all now-a-days."

ALL SALTED PROVISIONS should be watched to see that they are kept under the brine; for if one piece of meat lie up it will spoil the whole barrel. If the brine looks bloody, it must be scalded and more salt added; when cold pour back.

A BUSHEL of good beets, washed and crushed, will make four or five gallons of the best vinegar.

Domestic Receipts.

COOLING DRINKS.—The presence of hot weather is creating a demand for mild and cooling drinks. We append two very good receipts for preparing such:—

A delicious and slightly aperient effervescent citrate of magnesia may be made by thoroughly mixing 3 ounces of powdered loaf sugar with 2 ounces of powdered citric acid, then add ¼ ounce of calcined magnesia, 1½ ounce of bicarbonate of soda, and 1½ ounce of tartaric acid. Pass the whole thrice through a fine sieve, and then moisten it with very strong alcohol. Granulate it by passing it through a coarse sieve, and dry on a wooden tray at a temperature of 50° C. When dry add ten drops of essential oil of lemons, and then bottle at once in clean dry bottles.

A CONVENIENT AND EXCELLENT BEER for summer may be made as follows:—Take two ounces of ground ginger; one ounce of cream of tartar; one and one-half pounds of white sugar, and two lemons cut in thin slices and seeds taken out. Pour on these ingredients three gallons of boiling water; let it stand until quite cool; then stir well into a coffee cup of brewer's yeast. In twenty-four hours it will be ready to bottle, and in thirty-six will be fit to drink, but is better in a week.

FRENCH TOAST.—(A good method of disposing of stale bread.) Beat an egg on a plate and have a little dish of milk standing by. Dip the slices of bread first in the milk, then turn them on each side in the egg, and then lay them at once in the hot pan, with a little melted butter. Fry to a nice brown and send to table hot. Eat with butter, syrup or sugar.

ORANGE CREAM.—One pint cream, yolks of three eggs, six ounces powdered sugar, one orange; mix thoroughly, heat, and stir till cold.

LEMON RICE PUDDING.—Boil one-half pint of rice in one quart of milk until very soft. Add to it, while hot, the yolks of three eggs, the grated rind of two lemons, three tablespoonsful of sugar, and a pinch of salt. If too thick, add a little cold milk—it should be a little thicker than boiled custard. Turn into a pudding dish. Beat the whites of the eggs very stiff, together with eight tablespoonsful of sugar and the juice of the lemons, and brown on top. Set on the ice and eat very cold.

Mechanical Hints.

WHITEWASH OF DIFFERENT COLORS.—Take of good unslacked lime half a bushel; slack with warm water (rain water if convenient) in a forty-five gallon barrel. Keep covered while slacking. Use just enough water to slack dry. Let the lime stand four or five hours to insure its being well slacked. If it is desirable to have a good, smooth wash, the slacked lime should be sifted through a moderately fine sieve; if to be used on barns, out-buildings, and fences, it is not material about sifting.

To the lime thus prepared, add enough water to half fill the barrel, then add two gallons of flour starch, hot; one quart of grease (to make it run smoothly); four pounds of melted rosin, hot, to make it stick. The floured starch will also have the same effect.

Some use salt in making whitewash. We would not, as salt in damp weather causes the wash to crack and scale off.

After preparing the whitewash as above, fill your harrel with water, cold or hot, and you will have a wash that will stand quite well for five years. To color dark, or slate, use lampblack; for yellow, use yellow ochre; for blue, use indigo; for different shades of color, vary to suit. If the wash gets too thick make it thin with water. The older the above whitewash becomes, the better it will be, if it is kept covered with water, and not allowed to become hard.

SHALL WE PAINT SHINGLES?—Martin E. Thompson, who is endorsed by the Farmer's Club of the American Institute as good authority says that it destroys shingle roofs to paint them, and urges people not to paint them. He says the water backs up under painted shingles, so that they rot off much sooner than if left without paint. A cheap way to preserve shingles is to soak them, before laying, in whitewash made with the lye of hard wood ashes, with a little common salt dissolved in it. Heat the solution hot, and soak thoroughly.

POLISH.—Aqua ammonia, 1 oz.; prepared chalk, ¼ of an oz., mixed, makes an excellent polish for plated ware, rings, etc. It should be used with a soft brush or buckskin.

LIFE THOUGHTS.

NOTHING renders the mind so narrow and so little as the want of social intercourse.

VIRTUE and happiness are mother and daughter.

WISE MEN make more opportunities than they find.

FALSE PRIDE is the spiked fence that shuts us out from the garden of Paradise.

HUMILITY and generous truth are the angels that open the gates for our entrance into Paradise.

A SINCERE confession of our ignorance is one of the fairest and surest testimonies of our judgment.

THE FEARFUL DOOM.—It is comparatively easy to refrain from forming habits of intemperance; but it is almost impossible to break away from them when formed.

ANY one can drift. But it takes prayer, religious principle, earnestness of purpose, and constant watching to resist the evil of this world—to struggle against the tide.

COULD we see things as God sees them, we should not have a solitary wish for a single alteration in our circumstances; we should say "It is well."

CHRISTIANS pray with outspread, but clean hands; with uncovered head, because they are not ashamed; and without the aid of a prompter, because we pray from the heart.—*Tertullian*.

EVERY parent is like a looking glass for his children to dress themselves by. Therefore, parents should take care to keep the glass bright and clear, not dull and spotted, as their good example is a rich inheritance for the rising generation.

Good Sense.

The great trouble among American youth is the lack of application and thoroughness in what they undertake. Anything that cannot be learned by superficial study is given the go-by for something less tedious and irksome. Study and hard labor are looked at from a wrong standpoint; and as a consequence the clerkship ranks are full of unemployed young men, and the professions are overflowing with mediocrity, while good mechanics find plenty of work at living prices. The evil spoken of is seriously felt. And those who work at a trade do it in so loose and careless a manner that they often are not competent to do the work they promise to do.

We are needy in every condition. We are soldiers, and we need that grace should find us both shield and sword. We are pilgrims, and we need that love should give us both a staff and a guide. We are sailing over the sea of life, and we need that the wind of the Spirit shall fill our sails and that Christ shall be our pilot. There is figure under which the Christian life can be represented in which our need is not a very conspicuous part of the image. In all aspects we are poor and needy.—*Spurgeon*.

FREBEL says:—"He who will recognize the Creator must early exercise his own creative powers; exercise them with a feeling of consciousness for the representation of the good; for works are the bond that next to faith unite the creature with the Creator; and the consciousness of doing the same is the real living union between man and God; alike in the individual or in the race. With all this education must begin, and to this end it must always tend."

CONFESS YOUR WRONGS.—If you have wronged your brother, do not persist in the wrong; let not unworthy shame restrain you; but go to him with tears of love and say: "I acted in blindness and passion. I did wrong—now I mean to do right," and if that brother is worthy, he will hut love and cherish you the more tenderly for this generous emotion.

SAVE.—What is there a man cannot save and improve? By curbing appetite and restraining passion, by observing prudence and maintaining regularity, he may save his health, husband his strength, and preserve the springs of life, as constant fountains of energy and happiness, to sustain and cherish him under every labor and hardship. Time—the indolent might make wealth of it—one of the hours wasted each day on trifles, eared and devoted to improvement, is enough to make an ignorant man wise in ten years—to brighten up and strengthen faculties perishing with rust—to make life a fruitful field, and death a harvester of glorious deeds.

Business Cards.

A NEW PATENT.

If you want a superior set of TESTS on Gold, Rose-Pearl, or Pyroxaline, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN.
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

JOHN ROACH, Optician.

Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
23v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
OEO. M. CONDEE Cashier. 19-16-3m

WM. BARTLING. HENRY KIMBALL.

**BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.**
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO.
15v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Ballo Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

**SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,**
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

**J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.**
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

**CO-OPERATIVE UNION
Grocery and Provision Store**
Removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-tf

**L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,**



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacturer on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank
OF SAN FRANCISCO.**
Capital, One Million Dollars.

LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-qy

**DR. F. HILLER,
Homoeopathic Physician and Surgeon.]**
Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. mat-6m

**E. J. FRASER, M. D.,
SURGEON,**
No. 108 Stockton street, S. F., Cal

Eastern Advertisements.

OWENS, LANE, DYER & CO.

MANUFACTURERS OF

The Eclipse Saw Mills,

Combining THREE PATENTED Improvements
Essential to The Well Working of Circular Mills.



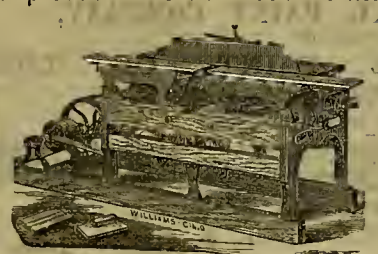
PORTABLE & STATIONARY ENGINES,

Mill Gearing and Machinery.
With the celebrated

STEAM THRESHER, "California Chief"

For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

Improved Universal Wood Worker

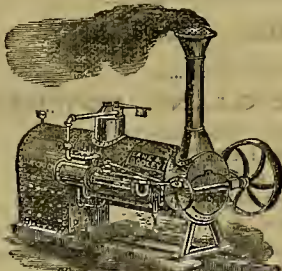


Jointing, Rabbling, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
mail-6m

LANE & BODLEY,
STATIONARY AND PORTABLE

STEAM ENGINES,

PREMIUM CIRCULAR SAW MILLS

—AND—

MILL MACHINERY.

PATENT INDEPENDENT AND SIMULTANEOUS

WROUGHT IRON HEAD BLOCKS,

Patent Lath Machinery,

SHINGLE MACHINES.

SAFETY POWER ELEVATOR.

LANE & BODLEY'S PATENT

POWER MORTISER,

BLANCHARD'S SPOKE LATHE,

Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery,

SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,

With Self-Lubricating Journal Boxes,

WE HAVE

Three Hundred Pulley Patterns

ONE HUNDRED HANGER PATTERNS,

OF UNIFORM STYLE AND WEIGHT.

Descriptive Circulars & Price Lists furnished on application to

LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.

CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

77 SAFES Delivered in San Francisco at Cincinnati
Prices.
Send for Catalogue. mail-6m



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any shoe before introduced.

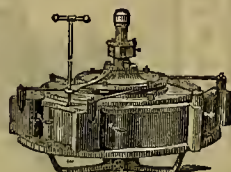
Bolthoff's Stem Guides and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine for dry crushing in use, doing easily, the work of ten stamps with one quarter the power.

Stamp Mills with all late
Improvements.

Send for prices and information. Address
O. F. HENDRIE, Pres., R. J. CORY, Secy & Treas.
1v22-3m cww Council Bluffs Iowa.
[ESTABLISHED 1820.]

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

**Hydraulic
ENGINEERS,**
Patentess
AND
Manufacturers



OF THE Per cent. of Power guaranteed equal to any Overshot Wheel.

American Turbine Water Wheel,

MILL GEARING AND SHAFTING

Of all Descriptions, and General Mill Furnishing.

Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular. mail-6m

Established 1843.

**LOUIS ESPENSCHIED,
WAGON MANUFACTORY,**
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,

ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROADS, ETC.

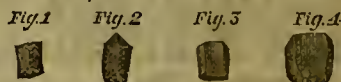
Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap15-ly

DICKINSON'S

Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery Wheels, Grindstones, Conglomerates, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Olaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger	Express	MAY 1, 1871.	Express	Passenger
Sunday	Train		Train	Sundays
except d	Daily		Daily	excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:40 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
5:30 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.
7:58 P.M.	12:15 P.M.	Stockton	1:43 P.M.	8:35 P.M.
9:35 P.M.	2:00 P.M.	Sacramento	11:40 A.M.	
	4:00 P.M.	Marysville	9:10 A.M.	
	9:00 P.M.	Sesma	4:20 A.M.	
	2:30 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	4:10 A.M.	Winnemucca	4:05 A.M.	
	12:00 A.M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:10 A.M.	Ogden	5:15 P.M.	

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 8:10 a. m. daily (except Sundays), and 3 p. m. daily. Returning leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily (except Sundays).
OAKLAND BRANCH.—LEAVE SAN FRANCISCO, "6:50, 8:10, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30 and "11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).
LEAVE BROOKLYN, "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.
LEAVE OAKLAND, "5:25, "6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only).
LEAVE HAYWARD, "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.
LEAVE FRUIT VALE, "5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

*Trains do not run Sundays.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

61 Miles the shortest line
From Chicago to New York. Three daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago
to Pittsburgh,
Harrisburg,
Philadelphia
and New York

WITHOUT CHANGE!
With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.
Express trains on this line are equipped with WEST-ROBHOUSE PATENT AIR BRAKES.

Boston and New England Passengers
will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburg, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York without change.
Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburg, Ft. Wayne and Chicago route. T. L. KIMBALL, Gen'l. West. Pass. Agt. Chicago, Ill.

J. R. ERRINGER, Jr., Travelling Agent, San Francisco, Cal. 4v22-1y

Yosemite

—AND—

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

C. P. R. R. Office, 422 California Street.
O. & N. W. Ry. Office, 445 California Street.
O. B. & M. R. R. Office, 214 Montgomery Street.
O. R. I. & P. R. R. Office, 208 Montgomery Street.
K. O. St. J. & O. B. R. R. Office, 306 Montgomery Street.

Meteorological Observations.

AT SACRAMENTO, CAL., BY THOS. M. LOGAN, M. D.
Permanent Secretary of State Board of Health.

Lat. 38° 31' 41" N. Long. 121° 29' 44" W. Height above
mean low tide, at San Francisco, 74 feet. Height of lower
surface of mercury, 94 feet. The amount of cloudiness is
designated by figures, 0 being entire clearness; 5, half
cloudiness; 10, entire clearness; and intermediate numbers
in proportion. The force of the wind is also registered in
the same manner; 0 being a calm, 1 a very light breeze,
and 10 a hurricane. The means are derived from three daily
readings at 7 A. M., 2 P. M., and 9 P. M., in uniformity with
the arrangements of the Smithsonian Institute.

1871.	MONTH AND DAY.	DAILY MEANS OF					WIND.	R'N
		Barometer Corrected.	Temp. Air.	Rel. Humid.	Force of Wind.	Amount of Cloudiness.		
		INCHES.	DEGS.	PER CENT.	MPH.	0-10.	Direction.	Force 50 ft. of Gauge 50 ft. of Gauge 50 ft. of
	JUNE.							
Sunday..	1	29.976	70	40	284	0	81 S.W.	N.W.
Monday..	2	29.983	73	43	386	0	89 S.W.	N.W.
Tuesday..	3	29.964	76	41	382	1	94 S.W.	N.W.
Wednesday..	4	29.911	76	46	414	1	86 S.W.	N. & S.
Thursday..	5	29.937	76	38	310	1	81 S.W.	N. & S.
Friday..	6	29.929	79	35	305	0	84 S.W.	N. & S.
Saturday..	10	29.826	59	50	350	0	81 S.W.	N. & S.

*Thermograph. +Rain.

REMARKS.—The above table contains the record of the
first "heated term" of the season. Coming suddenly
upon us, immediately after the late rains and the at-
tendant cool weather, its effects were more sensibly felt
and complained of than if our systems had been gradu-
ally prepared for the change. It will be seen that the
maximum, 98°, was reached on Friday, 9th. This,
however, was the reading of the Thermograph in
comparatively cool location; for in many localities the
mercury run up to 100°, and even 104°, in the shade.
Such intensely hot weather so early in June is unprece-
dented. Fortunately it never lasts long, and at the
present writing (10th), as shown by our table, we have
passed from a tropical to a temperate region, and are
now basking in the cool, invigorating, oceanic wind,
which, pouring through the Golden Gate from the west,
is deflected by the Contra Costa mountains, and reaches
us in this portion of the valley as a southeast wind.

San Francisco Metal Market.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, June 16, 1871

IRON.—Duty: Pig, \$7 1/2 ton; Railroad, 90¢ 100 lbs; Bar,
10¢ 100 lbs; Sheet, 10¢ 100 lbs; common, 15¢ 100 lbs;
P. L. Plate, 15¢ 100 lbs; Pipe, 15¢ 100 lbs; Galvanized, 25¢ 100 lbs;
Scotch and English Pig Iron, 7¢ ton; 303 50 533 00
White Pig, 7¢ ton; 40 00 40 00
Refined Bar, good assortment, 10¢ 100 lbs; 04 00 04 00
Refined Bar, good assortment, 10¢ 100 lbs; 04 00 04 00
Boiler, No. 1 to 4; 04 00 04 00
Plate, No. 10 to 12; 04 00 04 00
Sheet, No. 10 to 12; 04 00 04 00
Sheet, No. 14 to 20; 05 00 05 00
Sheet, No. 24 to 27; 05 00 05 00
Copper.—Duty: Sheathing, 3¢ 100 lbs; Pig and Bar, 25¢
100 lbs; 25 00 25 00
Sheathing, 3¢ 100 lbs; 25 00 25 00
Sheathing, Yellow; 20 00 20 00
Sheathing, Old Yellow; 10 00 10 00
Composition Nails; 21 00 21 00
Composition Bolts; 21 00 21 00
TIN PLATES.—Duty: 25¢ cent. ad valorem.
Plates, Charcoal, 13 1/2 box; 12 00 12 00
Plates, 10 Charcoal; 10 00 10 00
Roofing Plates; 10 00 10 00
Ranca Tin, Slabs, 15 00 15 00
Suez, English Cast Steel, 15 00 15 00
QUICKSILVER, 15 00 15 00
LEAD.—Pig, 10 00 10 00
Sheet; 10 00 10 00
Pipe; 10 00 10 00
Bar; 08 00 08 00
ZINC.—Sheets, 10 00 10 00
Boards, refined; 25 00 25 00
Bronze, crude; 10 00 10 00

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 10, 1871.

IRON.

Pig, Scotch, No. 1 (cash), per ton; \$33 00 @ 35 00
Pig, American, No. 1 (cash); 33 00 @ 35 00
Pig, American, No. 2; 33 00 @ 34 00
Swedish, ordinary sizes; 105 00 @ 120 00
Common; 12 50 @ 17 50
Refined; 71 50 @ 80 00
Rods; 82 50 @ 120 00
Horse-shoe; 35 00 @ 40 00
Elop; 100 00 @ 125 00
Sorel; 100 00 @ 125 00
Nail-rod, 10 00 @ 12 00
Spring; 10 00 @ 12 00
Tire; 17 00 @ 18 00

STEEL.

Bars, best cast, warranted, 10 00 @ 12 00
Sheet, best cast; 15 00 @ 16 00
Sheet, second quality; 13 00 @ 14 00
Sheet, third quality; 12 00 @ 13 00
Saw-plates, circular; 20 00 @ 30 00
Double-shear, warranted; 18 00 @ 20 00
Single-shear; 15 00 @ 18 00
Montague & Co. (cast bars); 11 00 @ 13 00
Machinery, round; 11 00 @ 13 00
German, best; 11 00 @ 13 00
German, good; 10 00 @ 12 00
German, eagle; 10 00 @ 12 00
Blister, warranted; 14 00 @ 16 00
Blister, common; 10 00 @ 12 00
Bessemer & Sons' common; 10 00 @ 12 00
Double-refined; 15 00 @ 18 00
Stone ax shapes; 26 00 @ 28 00

SUNDRIES.

American Lead, 100 lbs; 7 50 @ 8 00
German; 8 50 @ 9 00
Bar; 8 50 @ 9 00
Pipe and Sheet; 8 50 @ 9 00
Muslin and American Zinc, 10 00 @ 11 00
Antimony; 7 00 @ 8 00
Spelter; 7 00 @ 8 00
Copper, old; 17 00 @ 18 00

READERS will favor ourselves and advertisers by men-
tioning the fact when they obtain information from our
columns.

AGENTS CAN MAKE FROM \$1,000 TO \$3,000 A YEAR IN
almost any section of the country, selling Dana Bick-
ford's new and improved FAMILY KNITER. This
Machine is guaranteed (in its present completeness) to
meet every want of the household for either domestic or
factory work. Price \$25. Sent stamped envelope with
full directions for an illustrated book. Address
DANA BICKFORD,
Vice President and General Agent, 689 Broadway, N. Y.
23v22-6m-bp

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situa-
tion as salesman at or near home to introduce our new
T-Strand White Wire Clothes Lines, to last forever.
Don't miss this chance. Sample Free. Address Dun-
don River Wire Works, 75 William Street, N. Y., or 16
Dearborn street, Chicago, Ill. 23v1-12m-bp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING
Machine against easy monthly installments may apply to
No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York.
Good work at high prices if desired. 23v1-12m-bp

WIESTER & CO.,
No. 17 New Montgomery Street (Grand Hotel), San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

Patent Sand-Caps for Hubs of Vehicles.

The invention consists of a ring of metal which is made
conical in form and has its smaller end attached to the axle
near the collar. The edge of the larger end projects into a
groove, which is formed in the inner end of the hub, and
thus effectually protects the collar and the axle-box from
sand and dust. In the illustration, A is the hub of the
wheel, B the axle, which may be fitted in any of the ordi-
nary ways, C the collar, and D a ring of wood or metal,
which may be put on by removing C. In the case of axles
already made, or in new work, the ring may be slipped on before the axle is welded up. Town, County, Shop and
State Rights for Sale.

A New Patent Atmospheric Attachment to Dental Plates.

Can be applied to both New and Old Plates, so as to retain them firmly in the mouth while eating or talking;
superior to any thing ever before invented, cost of applying it small, and the greatest improvement immediately
felt by the wearer.

All who have badly-fitting plates can, by the application of this Attachment, wear them with perfect comfort
and usefulness while eating, talking, etc. State, County and Office Rights for Sale.

Hill's Grate Bar.

This Bar will withstand 800 degrees more heat than any other Bar now in use. It is unequalled in durability.
It generates more steam from the same quantity of coal, making a saving of from 1 to 15 per cent. in fuel. It has
been examined and used by some of the most scientific Engineers in the United States; and pronounced the best
Grate Bar extant for marine or land boilers. The Patent Right to the Pacific Coast is placed in our hands for sale.
A complete model can be seen at our office, or a descriptive circular will be sent on application.

A New Potato Digger.

County Rights for Sale and one Digger free.

A New Patent Stencil Plate that will Mark any Name or Number.

A Complete Self-acting Nut Roaster.

The Best Horse Hay Rake ever invented. County Rights for Sale.

New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas
Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full
particulars sent on application.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar
chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater
body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy sur-
face, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.
MANUFACTORY, Corner Fourth and Townsend Streets.

G. W. OSBORN, } Agents.
C. F. BROWN, }

VULCAN IRON WORKS,
Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,
MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,
STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND
GENERAL MACHINERY
CASTINGS
MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER,
Somewhat slower in its Explosion, which we recommend for
BLANK BLASTING, COAL MINES,
AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.
It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

Price. 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

20v22-3m16p

BANDMANN, NEILSEN & CO.,
General Agents, No. 210 Front Street.

HIBBERD, SANBORN & CO. BUILDERS.

STAIR

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from
the country promptly attended to. All kinds of Stair
Material furnished to order. Wood and Ivory Turners.
Billiard Balls and Ten Pins. Fancy Newels and Balus-
ters. 21v22-6m.

ARTIFICIAL LIMBS.

A. A. MARKS, No. 575 Broadway, N. Y. City,

The inventor and author-
ized United States Govern-
ment manufacturer of the
celebrated first premium
Artificial Limbs with Rub-
ber Hands and Feet, has
published a new and enlarged edition of his Illustrated
Pamphlet, of importance to all who have suffered am-
putations, especially to officers and soldiers who lost
their limbs in service. Copies sent free to applicants
21v1-13ts-12tr

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market. We
have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.

A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m

JOHN F. LOHSE, Secretary.

John G. Hodge & Co.,
IMPORTERS AND WHOLESALE
STATIONERS.

PAPER WAREHOUSE

KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

Blank Books made to order from Crew
Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabers genuine Lead Pencils.
327, 329 & 331 Sanson St. San Francisco.
19v22-10mly

PAIN KILLER
PROPR.
PERRY DAVIS & SON, PROVIDENCE, R.I.

1840 1870

The "PAIN KILLER" may justly be styled the great medi-
cine of the world, for there is no region of the globe into
which it has not found its way, and been largely used and
highly prized. Moreover, there is no climate to which it has
not proved to be well adapted for the cure of a considerable
variety of diseases; it is a speedy and safe remedy for burns,
scalds, cuts, bruises, wounds and various other injuries, as
well as for dysentery, diarrhea, and bowel complaints gen-
erally, it is admirably suited for every race of men in the
face of the globe.

It is a very significant fact, that notwithstanding the long
period of years that the "Pain Killer" has been before the
world, it has never lost one whit of its popularity, but on the
contrary, the call for it has steadily increased from its first
discovery, and at no previous time has the demand for it
been so great, or the quantity made has been so large, as it is
to-day.

Another significant fact, that nowhere has the Pain
Killer ever been in higher repute, or been more generally
used by families and individuals, than it has been here at
home, where it was first discovered and introduced. That
the Pain Killer will continue to be, what we have styled it,
THE GREAT MEDICINE OF THE WORLD, there cannot be the
shadow of a doubt. Providence Advertiser.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

ash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSHILD, Secretary. 20v17

Phelps' Patent Animal Trap,

FOR GOPHERS, SQUIRRELS, RATS, CATYOTES,
and other "Varmints."

This Trap, as may be seen, is of simple construction,
not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children
THE CHEAPEST AND BEST YET INVENTED. Price
50 cents. By mail, prepaid (to places where ex-
press charges are high), \$1. A liberal discount to clubs
dealers who buy by the dozen. Address the inventor
and manufacturer,
D. V. PHELPS,
San Leandro, Alameda County, Ca

INTERNATIONAL HOTEL,
San Francisco, Cal.

This Favorite House is located on Jackson street, a
few doors west from Montgomery; offers the greatest in-
ducements for Families. The International Coach will
be at each Car Depot and Steamboat, plainly marked
International Hotel, to convey passengers to the Hotel
FREE, and to any part of the city at reasonable rates.
F. E. WEYGANT & H. C. PARTRIDGE,
24v22-3m

CAUTION.

BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in con-
travention of his rights, which necessarily are numerous,
BETTS being the original inventor and Sole Maker in the
United Kingdom.

1, WHARF ROAD, CITY ROAD, LONDON, AND
BORDEAUX, FRANCE.

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,
Are prepared to make SHEET IRON AND ASPHALTUM
PIPE, of any size and for any pressure, and contract to
lay the same where wanted, guaranteeing a perfect
working pipe with the least amount of material.
All kinds of CAR WHEELS, AXLES and RAILROAD
WORK made to order. Standard sizes of Wheels con-
stantly on hand. Wheels bored and pressed on, Axles
turned, etc., at Reasonable Rates.
21v22-3m JOSEPH MOORE, Superintendent.

CAST IRON PIPE,
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now
being made at the

PACIFIC IRON WORKS,

In this city, under the Patents of Farrar & Whiting.
21v22-3m OODDARD & CO.



Of a far Higher Class than any other proprietary
medicine of the day stands

Tarrant's Effervescent Seltzer Aperient,
And for this reason: it is an exact counterpart of one of
the most valuable medicines in the world. We refer to
the great Seltzer Spring of Germany, to which thousands
of the dyspeptic, the bilious, the rheumatic, and the
victims of venal diseases resort annually, and return to
their homes convalescent or cured. The Aperient is
one of the first, and by far the most successful, of all
the efforts made to reproduce, in a portable form, the
popular mineral waters of Europe. SEE THAT YOU
PURCHASE ONLY THE GENUINE ARTICLE.
SOLD BY ALL DRUGGISTS.



LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

Declared by Connoisseurs to be the only good
Sauce. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire Sauce" to their
own inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask for LEA &
PERRINS' SAUCE, and see that their names
are upon the wrapper, labels, stopper and
bottle.

Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have been
forged, L. and P. give notice that they have
furnished their correspondents with power of attorney to take
instant proceedings against manufacturers and vendors of
such, or any other imitations by which their right may
be infringed.
Ask for LEA & PERRINS' Sauce and see name on
wrapper, label, bottle and stopper.
Wholesale and Retail Proprietors, Worces-
ter: Cross and Blackwell, London, &c., &c., and by
Grocers and Oilmen universally. Agents, CROSS
& CO., San Francisco.
1v22-1yew

Manganese! Manganese!

We have on hand the Best and Purest
article of Powdered Black Oxide of Manganese
ever sold on this coast. Price, Sixty
Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,

CYANIDE OF POTASS,
And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco.
22v17-3m

STOP PAYING RENT.

San Francisco Co-operative Land and
BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern
Building Associations.

MONTHLY INSTALLMENTS.....\$1.00

PURELY MUTUAL.....Interest, 6 per cent. per year.

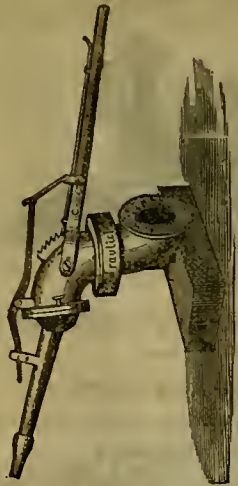
Subscription Book now open. Prospectus may be
obtained at the office, No. 305 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-
President; E. O. MORTON, Treasurer; H. B. CON-
DON, Secretary.

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE

Is the Best Hydraulic Machine in Use.



MACHINES MANUFACTURED TO ORDER,

to throw from one to an eight-inch stream.

ALL KINDS OF MACHINES

Built to order, and Repairing done promptly.

F. H. FISHER'S
Sacramento Street Machine Shop,

HYDRAULIC MINERS, TAKE NOTICE.

The notice published by R. R. and J. Craig, that they
have suits pending in the United States District Court,
which involves the working principle of my HY-
DRAULIC CHIEF, is false.

I caution all miners to beware of the efforts of the
said Craig to intimidate my patrons or extort money
from them by false representations.

I have a full patent for my Hydraulic Chief, granted
December 20th, 1870. No. of patent, 110,222.

24v22-1m F. H. FISHER.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the
Scientific Press, we are obliged to go to press on Thursday evening—
which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company—Location

of Works, Grass Valley, Nevada County, California.
Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the twenty-third day of
May, 1871, an assessment (No. 2) of twenty-five cents per
share was levied upon the capital stock of said company,
payable immediately, in United States gold and silver coin,
to the Secretary, at the office of the Company, No. 29 Mer-
chants' Exchange, San Francisco.

Any stock upon which said assessment shall remain un-
paid on Monday, the twenty-sixth day of June, 1871, will be
deemed delinquent, and will be duly advertised for sale at
public auction, and unless payment shall be made before, will
be sold on Monday, the seventh day of July, 1871,
to pay the delinquent assessment thereon, together with
costs of advertising and expenses of sale. By order of the
Board of Trustees, DAVID WILDER, Secretary.

Office, No. 29 Merchants' Exchange, California street, San Francisco, Cal. 21v22-1m

Altona Number One Gravel Mining Com-

pany, Alta Hill, Grass Valley, Cal.
The first annual meeting of the stockholders in the
above named company will be held at their office, No.
29 Merchants' Exchange, San Francisco, on Thursday,
July 6th, 1871, at 2 o'clock p. m., for the election of
Trustees, and the transaction of other business. By or-
der of the President, DAVID WILDER, Secretary.

jun3-5w

Eagle Quicksilver Mining Company—Lo-

cation of Works, Santa Barbara County, California.
Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 14th day
of June, 1871, an assessment of Twenty dollars per share
was levied upon the capital stock of said company, payable
immediately in gold coin of the United States, to the Secretary
at his office, Room No. 5, No. 302 Montgomery street, San
Francisco, California.

Any share upon which said assessment shall remain un-
paid on Wednesday, the 9th day of August, 1871, shall be
deemed delinquent, and will be duly advertised August
12th, 1871, for sale at public auction, and unless payment
shall be made before, will be sold on Monday, the 14th day
of August, 1871, to pay the delinquent assessment, together
with costs of advertising and expenses of sale. By order of the
Board of Trustees, WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California.

Hanscom Copper Mining Company—Loca-

tion of Works, Del Norte County, California.
Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 14th day of
April, 1871, the several amounts set opposite the names
of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Ayres, Washington.....	74	1 1/2	\$5 00
Birch, W. W.....	10	1	5 00
Brainerd, Henry.....		50	2 50
Chapman, Mary.....	93, 94, 95	12	60
Carroll, Owen.....	1	4	20
Colby, H. H.....	88	7 1/2	35
Dudley, Ehen.....	2	2	10
Delano, A. S.....	52	16 1/2	85
Eggers, George.....	83	3	15
Gotchel, Washington.....		3	15
Hadlock, William.....	85	8 1/2	40
Hamond, John.....	57, 54, 36	21 1/2	1 05
Huber Joseph G.....	81, 84, 85	30	1 50
Herrick, A. H.....	89	5	25
Kinman, C. W.....		100	5 00
Kersey, John D.....	72	8 1/2	40
Kelley, Lewis.....		2	10
Lord, W.....	65	2 1/2	12 1/2
Miller, A. D.....	1	25	1 25
Mirrill, R. A.....	41	28 1/2	1 45
North, D. F.....	97	7	35
Putnam, C. B.....	61	5	25
Reed, Sarah M.....	11	25 1/2	1 30
Ruggles, John.....	23, 62	8	40
Roseman, Joseph.....	77, 42	16 1/2	80
Smith, H. B.....		1	5
Stereo, Thomas F.....	81	1	5
Sutter, Augustus.....	80	8 1/2	40

And in accordance with Law, and an order of the Board
of Trustees made on the 28th day of April 1871 so many
shares of each parcel of said stock as may be necessary
will be sold at public auction at the Office of E. N. Strat-
ton, 128 Kearny street on Monday the 26th day of June
1871 at the hour of 11 o'clock a. m. of said day, to pay
said delinquent assessment thereon, together with costs
of advertising and expenses of sale.

JAMES BIDDOLPH, Secretary.
Office Golden State Iron Works, 21 and 23 First street,
San Francisco, Cal. 24v22-2t.

Kincaid Flat Mining Company—Location

of Works, Tuolumne County, State of California.
Notice—There are delinquent upon the following
described stock, on account of assessment levied on the
28th day of April, 1871, the several amounts set opposite
the names of the respective shareholders, as follows:

Names. No. Certificate. No. Shares. Am't.
S. Carl.....10 10 \$25 00
S. Carl.....39 5 12 50
James Nelson.....31 10 25 00
James Nelson.....32 10 25 00
Wm. H. Sharp.....35 10 25 00
Wm. H. Sharp.....36 10 25 00
N. Gartner.....104 5 12 50

And in accordance with law, and an order of the
Board of Trustees, made on the 28th day of April, 1871,
so many shares of each parcel of said stock as may be
necessary, will be sold at public auction, at the office of
the Kincaid Flat Mining Company, 230 Clay street, San
Francisco, Cal., on the 1st day of July, 1871, at the hour
of 10 o'clock a. m. of said day, to pay said delinquent
assessment thereon, together with costs of advertising
and expenses of sale.

N. C. FASSETT, Secretary pro tem.
Office, 220 Clay street, San Francisco, Cal. jun10-4w

Latawana Mining Company, near Hamil-

ton City, White Pine, State of Nevada.
Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 16th day of May,
1871, an assessment of twenty cents (20) per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold and silver coin, to the Secretary,
at the office of the company, No. 236 Front street, San Francisco,
California. Any stock upon which said assessment shall remain
unpaid on the 22nd day of June, 1871, shall be deemed delin-
quent, and will be duly advertised for sale at public auction,
and unless payment shall be made before, will be sold on
Tuesday, the 11th day of July, 1871, to pay the delinquent
assessment thereon, together with costs of advertising and
expenses of sale. By order of the Board of Trustees,

A. MARKIN, Secretary.

Office, 514 Merchant street, Room 26, San Francisco, California. 20v22-1w

Mauntau Silver Mining Company—

Location of works, White Pine District, State of Ne-
vada.
Notice—There are delinquent upon the following
described stock, on account of assessment levied on the
24th day of April, 1871, the several amounts set opposite
the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B. O. Hodge.....	38	100	\$50 00
B. O. Hodge.....	29	100	2 50
B. O. Hodge.....	63	20	1 00
B. O. Hodge.....	61	20	10 00
B. O. Hodge.....	62	250	12 50
B. O. Hodge.....	62	500	30 00
Washington Ayer.....	49	100	2 00
Justus Struver.....	28	150	7 50
Justus Struver.....	27	880	44 00
George Hearst.....	32	100	5 00
Wm. M. Hayne.....	39	325	16 25
Wm. M. Hayne.....	40	500	25 00
Wm. M. Hayne.....	41	500	25 00
Wm. M. Hayne.....	42	500	25 00
Wm. M. Hayne.....	43	500	25 00
Wm. M. Hayne.....	44	250	12 50
Wm. M. Hayne.....	45	250	12 50
Wm. M. Hayne.....	46	100	5 00
Wm. M. Hayne.....	47	50	2 50
Wm. M. Hayne.....	48	50	2 50
Wm. M. Hayne.....	49	50	2 50
Wm. M. Hayne.....	50	1000	50 00
Wm. M. Hayne.....	51	1084	54 20
Mrs. A. F. Black.....	57	450	22 50
Mrs. A. F. Black.....	58	2000	100 00
Mrs. O. J. Ferman.....	59	500	25 00
Richard Colburn.....	60	800	40 00
E. J. Ryan.....	61	100	5 00
J. M. Buffington.....	62	50	2 50
J. M. Buffington.....	63	500	25 00
J. M. Buffington.....	64	1700	85 00
J. M. Buffington.....	65	500	25 00
Henry L. Davis.....	70	750	37 50

And in accordance with law, and an order of the Board
of Trustees, made on the 24th day of April, 1871, so
many shares of each parcel of said stock as may be
necessary, will be sold at public auction at the office of
the Company, 37 New Merchants' Exchange, California
street, San Francisco, on the 19th day of June, 1871, at
the hour of 12 o'clock m. of said day, to pay said delin-
quent assessment thereon, together with costs of adver-
tising and expenses of sale.

Office, No. 37 New Merchants' Exchange, California
street, San Francisco, Cal. jun3-3t

Mina Rica Mining Company—Location

of Works, Auburn Mining District, Placer County, State
of California.

Notice—There are delinquent upon the following
described stock, on account of assessment (No. 2) levied
on the 25th day of April, 1871, the several amounts set
opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Desmond.....	9	25	\$5 00

And in accordance with law and an order of the Board
of Trustees, made on the 26th day of April, 1871, so
many shares of said stock as may be necessary will be
sold at public auction, at the office of the company, at the
418 California street, Room No. 2, third floor, San Fran-
cisco, Cal., on Tuesday, June 20th, 1871, at 1 o'clock p.
m. of said day, to pay said delinquent assessment
thereon, together with costs of advertising and expenses
of the sale.

GEO. R. SPINNEY, Secretary.
Office, No. 418 California street, Room No. 2, third
floor, San Francisco, Cal. jun3-3t

Mohawk & Montreal Cons. G. & S. M.

Co., Meadow Lake, Nevada County, State of California.

Notice—A special meeting of the stockholders of the
above named company for the purpose of electing Trust-
tees and such other business as may properly be brought
before the meeting, will be held on Tuesday, the 27th
day of June, 1871, at 3 o'clock p. m., at the office of R.
Wegener, No. 414 California street, San Francisco, Cal.

JERRY WEALEN, Trustees.

P. G. YENARA, Trustees.

Mountain City Mining Company—Loca-

tion of mines, Cope District, Elko County, Nevada.
Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 8th day of June, 1871,
an assessment of Twenty-five (25) cents per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold and silver coin, to the Secretary,
at the office of the company, No. 206 Front street, San Francisco,
California. Any stock upon which said assessment shall remain
unpaid on the 18th day of July, 1871, shall be deemed delin-
quent, and will be duly advertised for sale at public auction,
and unless payment shall be made before, will be sold on Tues-
day, the 8th day of August, 1871, to pay the delinquent
assessment, together with costs of advertising and expenses
of sale. By order of the Board of Trustees,

T. B. WINGARD, Secretary.

Office, 206 Front street, San Francisco, California. 24v1-4w

Taylor Mill and Mining Company—Lo-

cation of works, Georgetown District, El Dorado County,
State of California.

Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 15th day of May,
1871, an assessment of ten (10) cents per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold and silver coin, to the Secretary,
at the office of the company, No. 302 Montgomery street, San Francisco,
California. Any stock upon which said assessment shall remain
unpaid on the 12th day of July, 1871, shall be deemed delin-
quent, and will be duly advertised for sale at public auction,
and unless payment shall be made before, will be sold on Friday,
the 4th day of August, 1871, to pay the delinquent assess-
ment, together with costs of advertising and expenses of
sale. By order of the Board of Trustees,

SAM'L S. MURPHY, Secretary.
Office, 52nd Montgomery street, over Sather & Co's Bank
San Francisco, Cal. jun10-4w

Marcelina Silver Mining Company.—Lo-

cation of Works, Eureka District, Lander County, Ne-
vada.

Notice is hereby given that at a meeting of the Board
of Trustees, of said company, held on the 2d day of
June, 1871, an assessment of twenty (20) cents per share
was levied upon the capital stock of said company, pay-
able immediately, in U. S. gold and silver coin, to this
Secretary, Room 21, Hayward's Building, 419 California
Street, San Francisco, Cal.

Any stock upon which said assessment shall remain
unpaid on the 11th day of July, 1871, shall be deemed
delinquent and will be duly advertised for sale, at pub-
lic auction, and unless payment shall be made before,
will be sold on Tuesday, Aug. 1st, 1871, to pay the delin-
quent assessment, together with cost of advertising and
expenses of sale.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building 419 California
Street, San Francisco, Cal. 23v22-4w

Nevada Land and Mining Company.—Lo-

cation of works, Steptoe, Johnson & Latham, Ante-
lope and Clifton Districts, Elko County, State of Ne-
vada.

Notice—There are delinquent upon the following
described stock, on account of assessment (No. 7) levied
on the 8th day of May, 1871, the several amounts set
opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
H. C. Kibbe.....	unissued.	2,000	\$80 00
H. C. Kibbe.....	unissued.	2,000	80 00
Washington Meeks.....	unissued.	2,000	80 00

And in accordance with law and an order of the Board
of Trustees, made on the 8th day of May, 1871, so many
shares of each parcel of said stock as may be necessary,
will be sold at public auction, at the office of the com-
pany, Room 5, No. 302 Montgomery street, San Fran-
cisco, California, on the 3d day of July, 1871,
at the hour of 2 o'clock p. m. of said day, to pay said
delinquent assessment thereon, together with costs of ad-
vertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Fran-
cisco, California. 23v22-1w

Ophir Copper, Silver and Gold Mining

Company—Location of Works, Ophir, Placer County,
California.

Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 30th day of May,
1871, an assessment of sixty (60) cents per share was levied
upon the capital stock of said company, payable immedi-
ately, in United States gold and silver coin, to the Secretary,
at the office of the company, No. 314 California street, San
Francisco, California. Any stock upon which said assess-
ment shall remain unpaid on the 30th day of June, 1871,
shall be deemed delinquent, and will be duly advertised for
sale at public auction, and unless payment shall be made
before, will be sold on Monday, the 19th day of July, 1871,
to pay the delinquent assessment, together with costs of
advertising and expenses of sale. By order of the Board of
Trustees, R. G. BRUSH, Secretary.

Office, No. 314 California street, San Francisco, Cal. 24-4w

Office of Silver Sprout Mining Company,

206 Front street, San Francisco, May 23, 1871.—Stockhold-
ers' meeting.

Notice is hereby given, that the annual meeting of the
stockholders in the above named company, will be held at
the office of the company, No. 206 Front street, San Fran-
cisco, on Tuesday, June 27th, 1871, at the hour of 12 o'clock
a. m.

T. B. WINGARD, Secretary.

Office, 425 Montgomery street, San Francisco.

Pinto Mining Company, Location of Works,

Silmsdo, Pinto Mining District, White Pine County,
Nevada.

Notice is hereby given, that at a meeting of the Board
of Trustees of said company, held on the 24th day of
May, 1871, an assessment of twelve and a half cents per
share was levied upon the capital stock of said com-
pany, payable immediately in United States gold and
silver coin, to the Secretary, D. B. Arrowsmith, 426
Montgomery street, San Francisco, California. Any stock
upon which said assessment shall remain unpaid on the
26th day of June, 1871, shall be deemed delinquent, and
will be duly advertised for sale at public auction, and
unless payment shall be made before, will be sold on
Monday, the 17th day of July, 1871, to pay the delin-
quent assessment, together with costs of advertising
and expenses of sale. By order of the Board of Trustees,
D. B. ARROWSMITH, Secretary.

Office

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hynes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery...

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

15v20-3m

GODDARD & CO.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Gunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1

SACRAMENTO CITY

THE

ASPHALTUM PRESSURE PIPE

COMPANY,

HAVING ERECTED A MANUFACTORY

of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders

AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable, any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.

15v21-4f

Circulars sent on application.

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

ALSO

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron

9v14-5m

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco.

25v20-3m

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WM. P. HENSZLEY,

GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH,

WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal.

apl-cow26t

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

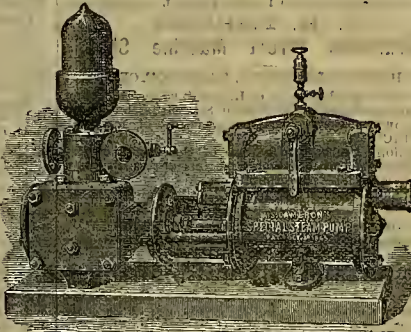
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTEEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

BOILERS

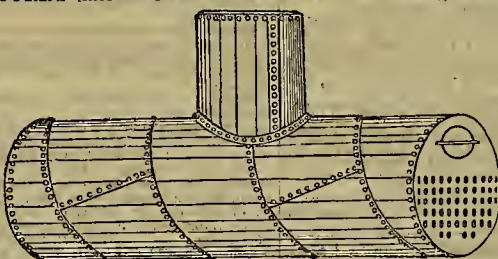
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



22v22-3m

Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.







MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francisco.

10v14q

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing.

8v20q

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1855

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,

Wm. Norris, Joseph Moore, Chas. E. McLane,

John N. Risdon.

WM. H. TAYLOR.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

24v17-qy

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

SAN FRANCISCO.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16q

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco

2v11-1f



OVER 300 IN USE.

BEST IN THE MARKET.

Engines, Pumps, Etc., Manufactured and on Hand.

For pamphlets and testimonial address

ROOT STEAM ENGINE CO.,

Twenty-eighth Street, corner Second Avenue,

20v22-cow26t

NEW YORK.

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES.

8v21-

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor brand Bolt-cutting Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and balanced.

MANUFACTURERS OF

French Burr Mill Stones, Portable Mills of all sizes, Dusters, Mill Picks, Mill Picks dressed; Millstones repaired; rebuilt and balanced.

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.

2v22-lyna

41 First st., San Francisco.

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,

4v21-ly

SAN FRANCISCO.

Mr. L. L. LEWIS, OF MONITOR, CAL., is not my Agent, nor has he authority to negotiate anywhere for the FURNACES, MACHINES AND PROCESSES OF WHELFLEY & STORER, nor for the STETEFELDT FURNACE in ALPINE or MONO Counties.

24v22-3m

JACOB J. STORER,

Boston, Mass.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minnan,

SAN FRANCISCO.

All kinds of Brass, Composition Zinc, and Babbit Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

J. H. WREED

V. KINGWELL

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

L. KRAMER

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.

9v19-qy

Machinery.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.

For further particulars address

FURMAN E. WILSON.

San Francisco,

MILLER'S TRUSSED PLATFORMS,
COMPRESSION BUFFERS AND AUTOMATIC COUPLERS, FOR RAILROAD CARS.



PATENTED MARCH 31, 1863, JANUARY 31, 1865, AND JULY 24, 1866.

Office—No. 231 Broadway, Rooms 4 and 5, opposite City Hall Park, New York.

The advantages gained by the use of these improvements may be briefly stated as follows:

1st. The platforms are held in a plane with the sills on the cars.

2d. The platforms cannot be broken by any ordinary accident.

3d. Telescoping is impossible.

4th. Any required compression may be attained, to prevent accidents by oscillation.

5th. No links and Pins are required, and no one is required to go between cars to couple them.

6th. The platforms may be held as close together as desired.

7th. By close coupling the train is shortened.

8th. They will not accidentally uncouple.

9th. They may be uncoupled "without shutting off," to make a flying switch.

10th. They are strong; the train will not "break in two" at starting or while running.

11th. They cause the train to move steadily and not jerk in starting or stopping.

12th. They work well at great variations of height.

13th. They will couple with all kinds of "drawheads" and "couplers."

14th. They are cheap and durable.

15th. Injury to men when coupling cars is entirely prevented.

16th. Injury to persons by falling between cars is entirely prevented.

17th. Injury to persons and to cars by "telescoping" is entirely prevented.

18th. Injury to persons and to cars by "oscillation" is entirely prevented.

19th. The great steadiness of the cars, produced by compression, renders sleeping cars much more desirable.

20th. "Train Brakes" are rendered more valuable by the non-existence of "slack" in the train.

No Railroad Manager who comprehends the case fails to give these improvements a "trial," and all those who have tried them have adopted them.

Prices of Materials, Etc.

Coupling Hooks.....	\$24 50 each.
Buffers.....	11 00 each.
Levers.....	2 00 each.

Patterns in Full Sets, or Single Pieces, for all castings used in the Improvements; and Templets, for Wrought Irons, AT COST. Drawings, Tracings, and superintendence of work are not charged for.

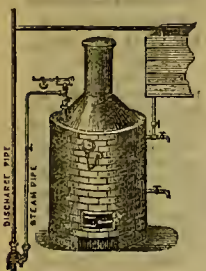
These articles will be promptly furnished and shipped to any part of the country on short notice. Orders must state what routes the goods are to go, and whether by express or as ordinary freight.

23v22tf

E. MILLER.

STEAM JET PUMP.

Blakelock & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT, Southeast cor. Tenib & K Streets, Sacramento City Cal.

AGENTS—CHAS. F. BROCK, 117 California St., San Francisco; KEPP & BARON, Stockton. Can be seen at McAFFEE, SPIERS & CO'S. Boiler Works, E. F. 21v21-1f

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

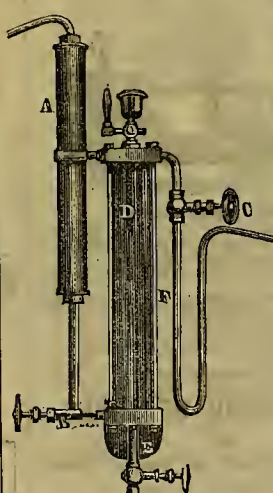
This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. K, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the siphon of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. fel8-1f

STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st., San Francisco,

who have the different sizes always in store.

4v22-



Metallurgy and Ores.

Richardson & Co.; Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

LOUIS FALKENAU, STATE ASSAYER, Analytical and Consulting Chemist, 421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

RODGERS, MEYER & CO., COMMISSION MERCHANTS, ADVANCES MADE On all kinds of Ores, and particular attention: PAID TO CONSIGNMENTS OF GOODS. 4v16-3m

NEVADA METALLURGICAL WORKS 19 and 21 First St., in Golden State Foundry. RIOTTE & LUCKHARDT. Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

PLATINUM Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes H. M. RAYMOND, 25 Bond street, New York. 22v18t

Platinum Scrap and Ores purchased.

CALIFORNIA ASSAY OFFICE No. 512 CALIFORNIA STREET, One Door West of Montgomery.....SAN FRANCISCO.

J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, etc. 10vX

LEOPOLD KUH, (Formerly of the U. S. Branch Mint, S. F.) Assayer and Metallurgical CHEMIST, No. 611 Commercial Street, (Opposite the U. S. Branch Mint,) SAN FRANCISCO, CAL. 7v21-3m

G. W. STRONG, W. L. STRONG.

G. W. STRONG & CO., Metallurgical Works, No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22tf

F. MORRIS, Practical Assayer and Metallurgist, Nos. 30 and 36 Fremont street, SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 19v22-3m

The Patent Wood Horse Collar AND HAME COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to burst, or stuffing to press out. Wood, being cool, never SWEATS or GALLS the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sorest Shoulders In Three Weeks, Working Every Day.

For further particulars as to price of Collars, etc apply to or address WELDMAN & MARBLE, No. 30 California Street, San Francisco, Proprietors for the Pacific Coast.

Agents Wanted. 19v22-2m

Pacific Insurance Company
No. 222 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire and Marine Insurance.
J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

Eighth Industrial Exhibition,
UNDER THE AUSPICES OF
THE MECHANICS' INSTITUTE,
San Francisco.

WILL OPEN
Tuesday, August 10, 1871.

And continue for four weeks, in the Pavilion
of the Society, on Union Square, in
the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of
the Mechanics' Institute any day, between the hours of
1 and 9 P. M., or by letter to the Corresponding Secre-
tary, H. C. KIRNE.
Mr. J. H. GILLMORE is authorized to visit those who
intend to exhibit from this city. feb18-18p-tf

Hubbard, Lippincott, Bakewell & Co.,
MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular
Saws, are superceding all others.
Groshy's Patent Gang Saw Buckle; Lippincott &
Twiss's Patent Cross Cut Saws; Davis' Patent Double
Cut Gang Saws (cuts both ways); and all of the cele-
brated brands of SAWS formerly manufactured by both
HUBBARD, LIPPINCOTT & CO. and LIPPINCOTT & CO.
Also, SHOVELS, AXES AND SPADES.
All orders from the Pacific Coast will receive special
attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods
at the
Lowest Market Prices,
And all Warranted of SUPERIOR QUALITY.
For Descriptive Catalogue and Price Lists address
HUBBARD, LIPPINCOTT, BAKEWELL & CO.,
me11-16p-tf Pittsburgh, Pa.

The Angel's Quartz Mine

Shaft is over 400 Feet Deep,
and is kept free from water
in its lowest level by the
BLAKE STEAM PUMP
Sold by BERRY & PLACE,
112 California st., San Fran-
cisco. 4v22

C. J. KING, B. KIMBALL, P. D. OJDE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES.
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [18p]

GOLD-SAVING
Silver-Plated Amalgamating Plates
FOR MINERS AND MILL MEN,
At San Francisco Plating Works, 655 Mission
Street, San Francisco.

Goods of every description Plated.
Old Goods Re-plated.
E. G. DENNISTON, Proprietor.
24v22-3m


BOONE'S C-SPRING ROLLER SKATE.
PATENT GRANTED.

This SKATE surpasses in Elasticity, Durability and Ease of Operation, any other Skate in existence. Its
superiority has been proved wherever it has come in competition with any other Roller Skate.
FOR DESCRIPTION SEND FOR DESCRIPTIVE CIRCULAR.
Warranted to run longer without requiring to be repaired than any other Skate.
Owners of Rinks will find it the most profitable as well as the most satisfactory to their patrons. The
patentees guarantee the right to run this Skate to purchasers of rights for the full term of the patent, and
Warrant it to be no Infringement on any Existing Patent.
State, County, Town and Rink Rights for sale at reasonable terms.
Apply by letter or in person to
UNDERHILL BOYNTON,
105 Montgomery Street, S. F., Cal.,
General Agent for the United States.

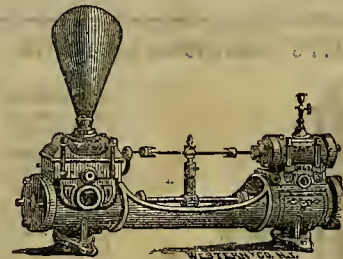
For Steam Pipes & Boilers
Hair Felting
For sale by BERRY & PLACE, Machinery Depot, 112 Cali-
fornia street, San Francisco.

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.
Page's Patent-Tanned Leather Belting
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Sturtevant's BLOWERS
Pressure
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.
MORSE'S PATENT.

For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.
BOILER TUBE CLEANER.
Blake's Patent PUMPS
Steam
For sale by Berry & Place, Machinery Depot, 112 Cal. st., S. F.

VENEER CUTTING MACHINE
FOR SALE.
The largest and finest in this country, together with
pulleys, belts, shafting, etc., all in perfect order.
Extreme length of cut.....11 feet 2 inches
Extreme width of cut.....29 1/2 inches
Thickness of log.....2 1/2 inches
Capacity, 50,000 feet per day, from 7 to 250 veneers to
the inch
For further particulars apply to
22v22-1m R. H. GALPEN, No. 2 Post street.

A. L. FISH, Agent.
KNOWLES' PATENT STEAM PUMPS.

Knowles' Steam Pump,
At the Monte Cristo Mining Co.'s Works, in Sierra
County, is raising water higher than any other
Steam Pump on the Pacific Coast.
All kinds new and second-hand Machinery in stock
and supplied.
No. 9, First Street, near Marke, San Francisco, Cal.
23v21-3qsl6p

THE OFFICE OF
"THE BUREAU OF MINES"
AND
Mining Statistics of the Pacific Coast"
IS LOCATED FOR THE PRESENT AT
No 729 Montgomery Street, Room No. 3.

OFFICE HOURS.—From 11 A. M. until 3 P. M. for the
Registry of Mines.

Parties desiring to communicate by letter, will obtain
Prompt and Reliable Information
Respecting Mines and Mining Property, by addressing
E. P. HUTCHINS,
Secretary of "Mining Bureau Pacific Coast,"
San Francisco, Cal.,
Care of Lock Box 406.
22v-18-tf

J. O. CALDWELL, President.
REESE LLEWELLYN, Superintendent.
COLUMBIA
Co-operative Foundry Company,
(INCORPORATED MARCH 16, 1871),
133 and 135 Beal Street, between Mission and Howard,
SAN FRANCISCO.
Manufacturers of
MACHINERY AND CASTINGS
of every description.
Particular attention given to Castings for Mills and
House Fronts. All Work done at the Lowest Price and
Shortest Notice. 23v22-3m

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Glohes, Steam Whistles. HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes.
Particular attention paid to Distillery Work. Manufac-
turer of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP-
PER and BRASS.
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont Street, near Markst,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economi-
cal Saws in the World.
Each Saw is Warranted in every respect:
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE. Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers. ns

RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.
These Engines are sim-
ple, compact and durable,
and in point of economy
of fuel and space are ex-
celled by none, and are
cheaper than any other
first-class cut-off Engines
in the market. Descrip-
tive pamphlets and price
lists mailed free on appli-
cation to the proprietors,
HENDREN & RIPLEY,
Corner Albany and Wash-
ington Sts., New York.
26v20-1y16p

BAIRD'S
BOOKS
FOR PRACTICAL MEN.
My new revised and enlarged Catalogue of PRACTI-
CAL AND SCIENTIFIC BOOKS, complete to April 16,
1871, 94 pages, 8 vo., will be sent, free of postage, to any
one who will favor me with his address.
HENRY CAREY BAIRD,
Industrial Publisher, 406 Walnut St.,
Philadelphia.

MAGAZINES.	P. An.
Harper's.....	\$4 00
Atlantic.....	
Godey.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	3 00
Peterson's.....	
Arthur.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
London Ill. News.....	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.
PATENT BROKERS.—Inventors having valuable patents
and needing reliable assistance in selling them should
consult **WEISTE & Co.,** No 17, New Montgomery street
under the Grand Hotel, San Francisco.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 24, 1871.

VOLUME XXII.
Number 25.

The Niagara Direct-Acting Steam Pump.

An inspection of this pump, and a comparison with others of the same class, shows that the Niagara is very simple in construction, being cast as far as possible (without detracting from its simplicity) in separate parts, so that any one portion may be easily replaced in case of accident.

Another point, of great importance in all steam pumps, is the ease of access to the water-valves in this device. Only one nut need be unscrewed in order to remove the bonnet from the valve chest; and this having been done, the valves are fully exposed and may be quickly removed and cleansed and the parts cleared of any obstruction which may have entered through the suction valves. Then the bonnet can be replaced, the whole operation being done in an exceedingly short space of time. These water valves have four square faces; should they become worn on one side, they may be turned, and this can be done until all the four faces have been used. Any carpenter can make, in a few moments, of some hard wood, a set of valves for this pump should the original ones wear out. The metal valves may be faced with leather for mining purposes, or vulcanized rubber valves will be furnished if required.

The direct-acting pump of this make is provided with a patent steam valve, by virtue of which the pump will start, when at any point of the stroke, on letting on steam. Hence the pump cannot become set on the center, and, moreover, can be run at any rate of speed. Thus, when feeding the boiler, it can be made to run as fast or as slow as may be desired; indeed, it can be run so slow, without fear of stopping, that the motion is hardly perceptible.

The pump is claimed to be particularly well adapted for mining purposes, for should it become submerged in the mine, it will start on turning on steam from the boiler at the top of the shaft, and work notwithstanding the condensation of steam incident to carrying it that distance to the pump. It has been proved in this respect in the mines of Colorado and Pennsylvania, when from fifteen to forty feet under water. Another advantage is that both the steam and the water cylinders are fitted with metallic ring packing (or hemp may be used if preferred), so that they are equally adapted to pumping either hot or cold liquids. Their value in this respect is attested by their general and satisfactory usage in breweries, distilleries, sugar houses, oil refineries, etc.

In adapting these pumps to the various duties of transferring and forcing the different liquids, a large number of patterns have been accumulated, so that the manufacturer holds himself ready to meet any

want which may be manifested in this line. For all special cases, or for forcing liquids to an unusual height, the proportion of the steam cylinder to the water cylinder will be varied to suit the requirements of the case.

The inventor of the Niagara pump, Mr. Charles B. Hardick, has taken out patents in the United States, England, France and Belgium. The device is manufactured in this country only at his Niagara Steam Pump Works, 23 Adams street, Brooklyn, New York. His pumps, it should be added, were awarded the First Premium at the American Institute Fair, at New York, in 1867, after a severe competitive test, with other pumps on exhibition.

There is also built, at the works named, a steam crank pump and engine combined, which is adapted to driving machinery,

Academy of Sciences.

The regular meeting of the Academy was held last Monday evening. To fill the vacancy occasioned by the resignation of Mr. Carlton, Mr. A. D. Hodges, Jr., of the SCIENTIFIC PRESS, was elected Secretary.

Prof. Davidson presented a collection of plants from Alaska, collected, in the vicinity of Sitka Sound, by Rev. J. O. Raynor, Chaplain U. S. Army. Various pamphlets had been received since the last meeting. A communication was received from the authorities of the Odd Fellows' Library, tendering to the members of the Academy the freedom of the Library. A vote of thanks was returned, with the corresponding privilege of the freedom of the Academy rooms to the officers of the Library. Such interchange of courtesies are

and female flowers were usually separate, and so rare was it that they were intermingled on the same stem, that a prominent botanist lately asked the question through the *American Naturalist*, if such a thing had ever been seen. This was a case in which it existed.

Dr. Gibbons presented two plants which he had found growing in a boiling spring in Pueblo Valley, Nevada, 100 miles north of Winnomneca, the water of which was at least at 140 degrees.

Invention—Earthquakes.

Prof. Davidson, of the Coast Survey, showed and described an instrument on which he had made several valuable improvements. By the combinations made by the Professor, and the construction, both latitude and longitude can be determined by one instrument with great ease and accuracy. This combination instrument has been adopted by the corps of Topographical Engineers, and the engineers of Europe are taking pattern from it. The two old-style separate instruments necessary for the purpose cost \$2,100. This device costs \$1,200.

Dr. Gibbons said he had several times made reference in the Academy to pendulum movements of the thermometer, which he had attributed to slight earthquake motion, but the members thought what he saw was but the effect of the wind. He had since noticed several times the same phenomenon. On the 9th and 10th of April last, he noted several distinct variations, and on the 11th, according to the papers, there was a terrible earthquake in China, killing 2,800 people and overthrowing buildings. His theory of earthquakes was that some of them were caused by the gases of the earth passing from one sub-surface cave to another. It was but natural to suppose that just prior to an earthquake the pent up gases should render the crust of the earth in a state of tension in various points. He had no doubt that his observations of the barometrical motion were the result of earthquake movements.

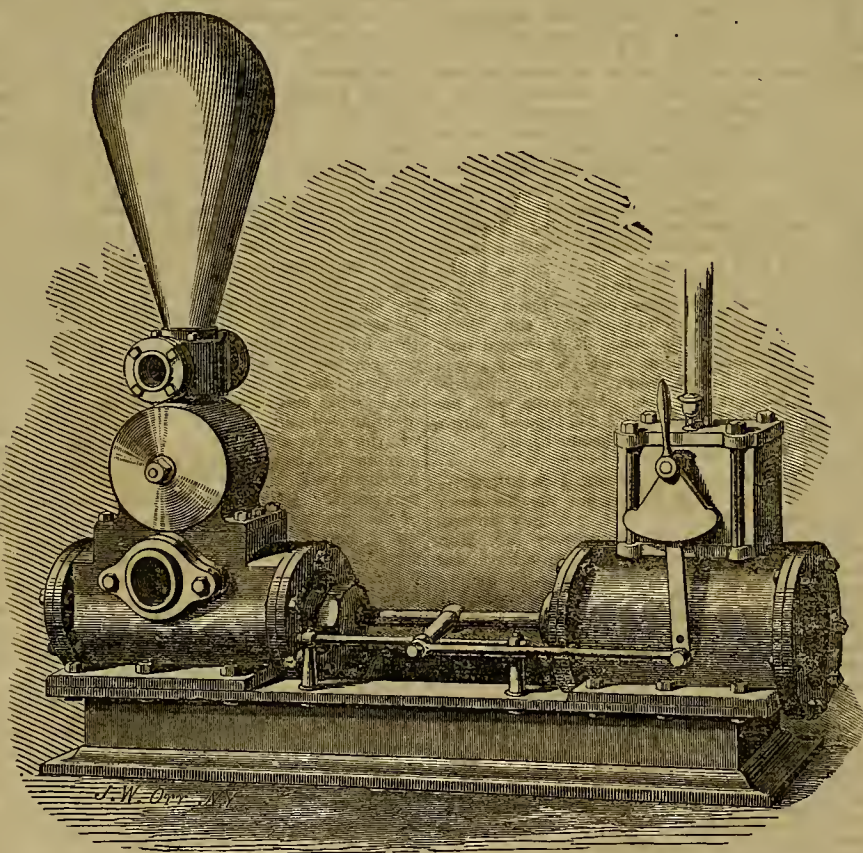
Professor Davidson mentioned a peculiar wave-like ripple which he noted in San Diego Bay, May 26th, at 7.10 A. M., and which he thought could not possibly have proceeded from a breeze.

Obituary.

Dr. Gibbons was appointed a Committee to draw up resolutions of respect for the late Gregory Yale, formerly a member.

Dr. Cooper called the attention of the Academy to the death of Capt. Blanchard, of Washington Territory.

HON. W. D. Kelly lectured before the bankers and merchants of Philadelphia, June 12th, on the development of the northwest by the North Pacific Railroad, and the effects of the same upon the trade and commerce of the Middle States.



NIAGARA DIRECT ACTING STEAM PUMP.

and is claimed to possess all the advantages of the device above described. An important feature in it is that the pump can be detached from the engine in less than a minute, and all the steam employed in driving machines, when it is not necessary to use the pump.

RETURNED.—Mr. Dewey, of this office, has just returned from his trip to the Eastern States. His visit to Washington, New York and other Eastern cities has resulted in beneficial transactions of much importance for the progress of our newspaper and other business interests.

very pleasant to see, and none too frequent.

Curiosities of Vegetation.

Dr. Gibbons presented a bunch of seaweed, from near Half Moon Bay, and the coast in that vicinity. It was of fibrous structure, and had been utilized by the natives along the coast in making ropes. It was found near the edge of the ocean, in the barren sands. Where one of these plants grows a cone of sand accumulates around it. Mr. Bloomer thought it was the *Transeria Chamisoni*.

Dr. Cooper presented a cluster of flowers of Indian corn, which he said was a curiosity. It was well known that the male

MECHANICAL PROGRESS.

ATMOSPHERIC GAS ENGINE.—The *Mechanics' Magazine* for May 26th, describes a new engine patented by Messrs. Lange and Otto, of Cologne. We quote part of the description:—"Gas and air, mixed in such proportions as to give an explosive compound, are admitted under a piston which slides air-tight in a vertical cylinder open at the top. The compound is ignited, explodes, and the explosion drives the piston upwards. The ignited gases having increased in volume, lose their heat, their pressure becomes less as the piston rises, and when it has got to the top of the cylinder a partial vacuum is formed and the pressure of the atmosphere makes the piston descend. * * * The piston, instead of having a piston rod connected to the fly-wheel shaft by a crank and connecting rod, has a rod fixed to it upon which is formed a rack in gear with a spur wheel upon the fly-wheel shaft; this spur wheel is not fixed to the shaft, but is so connected to it by means of a ratchet wheel or friction clutch mechanism that when made to revolve by the rising of the piston and its rack, it turns freely upon the shaft, but when made to turn in the reverse direction by the downward motion of the piston and rack it causes the shaft to revolve with it. Thus when the ignition of the mixture of gas and air takes place beneath the piston the expansive force of the heated gaseous products of combustion causes the piston to be thrown rapidly up to the top of the cylinder, no other work being at the time performed by such motion than the turning of the spur wheel loose upon the fly-wheel shaft. By the time that the piston has arrived at the end of its stroke the expansion of the gases has cooled them to such an extent that by their consequent condensation a partial vacuum has been formed beneath the piston, the latter portion of the stroke of which has been made by the momentum which it has acquired, and the pressure of the atmosphere now consequently forces down the piston and rack, thereby causing the fly-wheel shaft to revolve as described."

IRON WORKS IN MISSOURI.—The Vulcan Iron Works will this season erect a furnace larger than any now in use in the United States. "The new furnace will stand on twelve columns, each thirteen feet high—will be twenty-five feet interior diameter, or bosh, and one hundred feet high. It will have five times the cubical area of any furnace now in Carondelet. Her hot-blast will be entirely of fire-brick, encased in wrought iron, and therefore almost indestructible. The temperature of heat thus gained will range from fourteen hundred to sixteen hundred degrees, and higher, if desired; whereas the heat of furnaces at present, in cast iron pipes, cannot in safety exceed 850 degrees. This furnace is expected to produce from 180 to 200 tons of iron per day."

The *Iron Age* says of the Vulcan Works: "The length of the puddling mill is 468 ft., by a width of 83 ft.—being the largest rolling mill west of the Alleghanies, and having twenty double puddling furnaces, equal to forty single ones. The rail rolling mill is in the western building. The pig metal from the blast furnaces goes immediately to "a mill," where it is decarbonized and converted to wrought iron. After thus going through different manipulations, the bar is transferred to the western division, or rail mill, where the piled mass is put into heating furnaces, raised to a white heat, and then put in the train of rollers, three in height, and is at once rolled into the finished rail before cooling. This mill, when in full operation night and day, has a capacity of making 40,000 tons per annum of finished rails."

PNEUMATIC HOTEL TELEGRAPH.—The *Manufacturer and Builder* for June thus describes it: "The compression of an ordinary India rubber bulb at one end of a pipe transmits an impulse or wave through the column of air therein contained. At the other end of the tube is a box with an elastic membrane covering it, on which lies the end of a lever which works the bell-hammer with the same movement as that in which the key of a piano-forte transmits motion to the hammer which strikes the string. The impulse passing through the tube expands the membrane, which raises the lever and so strikes the bell. For many reasons, lead tube has been found preferable to any other material, to use as a means of transmitting the impulse. The tube itself being drawn, the interior surface is very smooth and presents no inequalities to re-

tard the velocity of the wave. The metal is ductile and entirely inelastic, so that none of the force of the impulse is lost by its expansion. This apparatus has many advantages over the ordinary electric telegraph now in use for hotel annunciators and other purposes in large buildings. The principal ones are its cheapness and the facility with which it can be kept in order; the expense of substituting small lead tubing for copper wire being amply balanced by the amount gained by doing away with the troublesome and expensive electro-magnetic apparatus and batteries, which, if not in perfect order or in the least neglected, render the whole system to which they are attached useless."

BITUMINOUS COAL THE MOST ECONOMICAL.—The *Philadelphia Ledger* says that the Superintendent of the United States Armory at Springfield, Massachusetts, has been conducting a series of experiments to test the value of certain kinds of coal as a steam generator. Each variety of three different classes of coal was used for six consecutive days in raising the steam for the engine of the establishment, with the following reported results: Of the Lackawanna, or hard anthracite, 4.01 pounds per horse power were used per hour; of the Pittston, a softer anthracite, 4.02 pounds were used; and of the Cumberland, or bituminous coal, of Maryland, 3.03 pounds were used. At the Springfield Armory, the Lackawanna coal cost \$8.50 per gross ton, the Pittston \$7.85, and the Cumberland \$9.10. From these data it is calculated that the cost, per horse power, is 15 mills for Lackawanna, 14 mills for Pittston, and 12 mills for Cumberland—and it is therefore alleged that bituminous coal is the more economical fuel as a steam generator, making more heat and creating more power per pound and per cent. of cost than the harder coals.

SCREW VS. PADDLE.—The *London Times* says that the steamer *Syria*, built in 1863, and fitted with paddle-wheel engines of 450-horse power, attained a speed of 13.038 knots per hour, and the consumption of coal was at the rate of 45 tons per day. She has recently been converted into a screw-propeller, without any change in the model beyond that made by the removal of the wheels and wheel houses. The crank engines were taken out, and in their place were substituted compound inverted engines of 300 nominal horse-power. These engines have two cylinders, of 72 and 36 inches respective diameter, with a stroke of 4 ft. 2 in. On her trial trip as a propeller the *Syria* attained a speed of 12.637 knots an hour, with a consumption of coal not exceeding 18 tons per day; thus showing that while the speed is decreased only 0.421 knots an hour, with 150-horse power less than before, there is a saving in coal of 27 tons per day. Moreover, she has now storage room for 1,200 tons of cargo, against 500 tons—her former limit.

TWO-KEYED TELEGRAPH INSTRUMENT.—We take the following from the *Mechanics' Magazine* for May 26th: "A new instrument has been brought out by Mr. Herring. It is furnished with two keys, one to work a lever carrying a pin, to make a dot, and the other to work a lever carrying a small linear stile to make a dash. Greater accuracy seems likely to be secured; for it now takes a very long time to acquire the art of releasing or holding down the key with accuracy. It will be much easier to learn to use two keys, one for the dot and the other for the dash, and to use them with the same rapidity. Mr. Herring suggests that it would be practicable to emboss two clips at the same operation, and to give one to the sender, who would thus know with certainty what message had been despatched."

CARTRIDGE MANUFACTURE.—A single firm in Springfield, Mass., turn out 150,000 patent metallic cartridges per day. "These are in seventeen sizes, and are of the most perfect finish. The firm consume over 100 tons of lead per year, beside a large quantity of copper. Their machinery, much of which was invented by themselves, is all new, and of the highest efficiency. They are about to put in a 40-horse power engine, and add to their working force."

WIRE ROPE.—The largest rope in the world has been recently manufactured at Birmingham, England. It is 11,000 yards in length, 5½ inches in circumference, and weighs over 60 tons. The rope consists of six strands of patent charcoal wire laid round a hemp center. Each strand contains 10 wires; each wire measures 12,160 yards, so that the entire length of the wire reaches the total of more than 412 miles.—*Iron Age*.

SCIENTIFIC PROGRESS.

PHYSICAL CONSTITUTION OF THE SUN.—In *Silliman's Journal* for June, Prof. W. A. Norton has an article upon this subject, in which he takes the ground that the heat repulsion emanating from the sun causes the various substances which it is composed of, probably the same which are present in all cosmical bodies,—to arrange themselves in successive envelops according to the gravity of the atoms constituting each; beginning with the heavier metallic vapors, and terminating with the lighter (potassium, sodium, etc.), and the permanent gases, with hydrogen outermost. The waves of radiant heat, which pass from atom to atom, directly urge the atoms away from each other by repulsive impulses. Certain phenomena relating to comets suggest this theory, and thereby explain some of the solar phenomena which have been obscure. We quote:—"If, as is now conceded by astronomers, the tail of a comet is made up of matter detached from the general mass of the comet, by reason of a repulsive action exerted by the sun, it must also be admitted that the matter expelled is not all urged away by the same intensity of force, and with the same velocity; for we find that it is much more widely dispersed in the plane of the cometary orbit than is consistent with this supposition. * * * There would seem then to be no alternative but to admit that the tail of Donati's comet was composed of different substances, (or else of one substance in different physical states) subject to a repulsive action from the sun of various degrees of intensity; and either prevailing over the sun's attraction of gravitation, or partially counteracting it, and so giving rise to an effective repulsion for certain of these substances, and to a diminished gravitation for others. The simplest theoretical explanation that can be given of this state of things is to suppose that the solar repulsion consists of a series of impulses propagated in waves through the ether of space, and taking effect upon atoms of different sizes with varying intensity. It is obvious that if this be true, the smaller the atom the more effective should be the repulsion as compared with the gravitating force soliciting the atom; since the ratio of the two forces should be proportional to the surface divided by the volume, or that all atoms have the same density. We are thus incidentally led to infer that the larger comets consist of a variety of substances, like the earth. The question now arises what can be the origin of the force of solar repulsion. There is another side of the diversified picture presented by cometary transformations under the sun's influence, which gives some intimations on this point. Not only is a certain portion of the cometary matter repelled by the sun, but is also repelled by the nucleus of the comet. We see in large comets, a series of envelopes rise at intervals from the nucleus, on the side turned toward the sun, and recede at a nearly uniform rate until they become dissipated by the sun's repulsion. Luminous jets also stream out at times from the same side of the nucleus. These phenomena, it can hardly be doubted, are in some way the effect of the sun's heat. The simplest and most probable conclusion is that the ejecting force which is brought into play by the sun's heat is the direct repulsive energy of the heat received by the comet. We are thus led to infer that the repulsive action exerted by the sun upon matter in the state of the cometary vapors, probably consists, either wholly or partially, in repulsive impulses propagated in the heat waves proceeding from the sun."

QUANTITY DETERMINED BY THE SPECTROSCOPE.—We find the following in the *Journal of the Franklin Institute* for June: "The use of the spectroscopic to detect minute traces of substances has been the most glorious achievement of the chemistry of the last decade; perhaps its employment to determine minute quantities may be the great exploit of the next. As an essay in this direction, may be noticed the interesting contrivance of K. Vierordt, who divides the movable plate of the slit of the spectroscopic into an upper and lower half. Each half is provided with a micrometer screw, by which the width of the corresponding slit can be accurately measured. If the upper and lower slit are of the same width, the two spectra are of equal strength. If, however, a transpar-

ent colored medium be brought before the upper slit, for example, a tinted glass, a thin plate of any colored body, or a solution of a colored substance in a tank with parallel sides, we have two spectra of different intensities. The other slit is now diminished by the motion of the micrometer screw until the spectra are made equal in strength, and by comparison the amount of this motion is made to give the amount of coloring matter present."

PROF. WYVILLE THOMSON ON "LIFE."—*Nature* for May 25th, gives the first part of Prof. Thomson's late introductory lecture at Edinburgh University. Following is an extract:—"Life has been called the vital force, and it has been suggested that it may be found to belong to the same category as the convertible forces heat and light. Life, seems, however, to be more a property of matter in a certain state of combination than a force. It does no work in the ordinary sense. If a man lift a weight off the ground, many of the so-called vital actions are called into play, but yet every part of the work done can be accounted for by the action of the ordinary physical forces. The act of the will, which induced the lifting of the weight, can be referred, we can scarcely doubt, to the mechanical action of some part of a large and complicated apparatus, the cerebral hemispheres, and was accompanied by a waste of its substance. * * * Chemical forces act in living beings under very special circumstances. For a series of years a mass of substances are held undergoing constant change and throughout in the most unstable state of chemical combination. The instant the condition of life is removed, decomposition commences, and the complex constituents of the body are resolved into more simple and stable combinations. But yet it may be fairly questioned whether the chemical relations of the component elements of an organized body are in any way directly affected or controlled by life. It has become quite conceivable, especially through the researches of the late Master of the Mint, that a constant adjustment and re-adjustment of membranous and colloid diaphragms in the presence of powerful catalytic agents may possibly explain the maintenance of almost any chemical conditions however complicated. The one function of living beings whose explanation it seems at present impossible to imagine except by regarding it as the manifestation of a special property, is what has been called the 'moulding of specific form;' the building up of a heterogeneous and complicated organism, which shall repeat, not rigidly but with a certain flexibility, the characters which have been transmitted to it through a germ from a parent, every molecule of every part having thus a direct relation in form, in position, and in composition, to every other molecule of the body. At present, regarding it from a purely material point of view, we are scarcely justified in regarding life as more than that condition of an organized being in which the products of chemical and physical changes taking place within it are stamped with a specific organic form."

THE OPAL UNDER THE MICROSCOPE.—At a late sitting of the Imperial Academy of Sciences in Vienna, Prof. von Hochstetter communicated some microscopic investigations on opals, by Dr. H. Behrens, in which the author states that most opals are mixtures of various minerals, including a colourless fundamental mass, containing (microscopically discoverable) hydrophane, caccholong, quartz, hydrated and anhydrous oxide of iron, ferriferous silicates, metallic sulphurets and carbonates, and organic substances:—fire-opal, glass-opal, noble-opal, and hyaline are free from admixture, and the first two are structureless. The colours of the noble-opal are interference-colours, caused by their lamellae, which, however, are not tabular crystals. The double refraction discovered by Schultze in hyaline is caused by differences of elasticity such as occur in dextrin, amher, and compressed glass. The author also noticed the spheroidal structure which frequently occurs in opals.

SPONGY IRON A DEODORIZER.—It is found, says the *Mechanics' Magazine*, that iron prepared in a spongy state, by calcining finely divided iron with charcoal, is a superior deodorizer to animal charcoal. Sewage water passed through a filter of spongy iron is completely purified, and the water retains its sweetness for a considerable time. A spongy iron filter renders water beautifully transparent and apparently free from organic matter.

CORRESPONDENCE.

Lower California and the San Diego Mines.

ENS. PRESS:—Having just returned from Lower California where I have been for some weeks past, looking at the country and examining mines, having gone about

200 Miles Down the Coast

From San Diego, I availed myself of the kind invitation of the Rev. Father Ubach, (the Catholic priest of old San Diego), to ride with him in his buggy behind his two large fine horses; as it was at the time his parish duties required him to visit "San Rafael" and Sauto Tomas, to give the isolated inhabitants of that desolate country the benefit of religious services and teachings; it being made obligatory for him to make the trip and bold services there twice a year. This is done without any appropriation of funds for the extraordinary expenses of the trip which is very destructive to clothing, buggy, harness, horse shoes and horse flesh; besides the great deprivations to be suffered on the roads, travelers are obliged to take along horse feed, blankets, and provisions, to provide for camping out and living, (as there are only two places where a meal can be had, and one place where a bed can be had on the road), besides, persons not accustomed to the country are liable to illness from drinking bad water and from exposure to a burning sun. Moreover, Father Ubach is obliged to depend upon the meagre donations of an impoverished people for his expenses and trouble, which, on this trip, barely paid traveling expenses.

My opinion is, that if the Bishop of this diocese was to come here and make the trip once with Father Ubach, he would certainly endeavor to have him better paid, or relieve him of at least half the work;—and he would find but few who would undertake the arduous duties on those terms. Father Ubach submits to the requirements with Christian fortitude without a murmur, exhibiting a living example of religious devotion and piety through all the dangers and trials of the tour, never omitting his daily devotions and duties, but impressing all with whom he comes in contact with the firmness of his religious faith; at the same time I found him to be a most jovial and companionable traveling partner. Although born in Spain, and a thorough Spanish scholar, he speaks English fluently—is liberal in his ideas and well informed. In less than two days after leaving San Diego we arrived at

The Mining Town of San Rafael,

A place now containing over 400 inhabitants. The placer mines were discovered here in August last, and were found to be remarkably rich; a great deal of gold having been found on the surface in nuggets, varying from 50 cents up to \$7 or \$8 in value; and one was found worth \$104. All the gulches heading in a "Mesa," one mile and a half from town are rich, and would afford good return for mining, if a good sluice head of water could be had to work with. As it is, they are picking the dirt on the backs of animals and men, and occasionally carts are used to carry it to water, from a mile to a mile and a half distant. Many are making from one and a half to two dollars to ten dollars per day.

Some miners are working on quartz ledges, and occasionally strike pockets of ore extraordinarily rich. Seven pounds of ore, taken from the "Pueblo" claim, belonging to Señor Morena & Co., were pounded in a mortar and yielded \$124.50. They have not gone down on this ledge far enough yet to get a well-defined vein. Very rich specimens have been taken out from a number of claims in the vicinity; but only one or two well-defined ledges have yet been discovered.

The largest and best gold-bearing ledge I have seen in all the country, is the "St. Nicholas," which shows a cropping of from 15 to 25 feet in width. They have an incline shaft down 25 feet, about 6 feet square in size. The walls of the ledge are not touched in any place. All the rock, from croppings to bottom of shaft and drift, prospects gold, often showing free gold. The mining laws of Mexico are very liberal. Señor Sosa, President of the municipal organization of the Northern Dis-

trict of Lower California, Señor Leon, collector, and Ferraci C. de Maravilla, a merchant of San Rafael, are the principal owners.

It seems to me (having examined the ground) that a profitable operation could be made by any company that would undertake to throw the water from the creek on the placer mines. The elevation would not exceed 200 feet, and the distance not more than one mile and a half. I can give any party or parties definite information as to particulars if desired.

San Tomas.

We remained there nearly one week, then left for Santo Tomas, the Capitol, so called, of the district and residence of Lieutenant Governor Rojo. From there I rode on horseback thirty or forty miles south, to examine some copper, silver, and quicksilver mines that have been worked and abandoned long ago. Without particularizing, I found what seemed to be a rich mineral country, with granite formation generally, interspersed with belts of slate. The country is mostly barren, and there is a scarcity of wood and water for mining and milling purposes; although I found a few very fine valleys with plenty of water near by, if the ocean might be considered plenty, as it was within two miles, with good level country for road, and wood within a few miles.

Having thus given you, in a disconnected manner, a very short general idea of that portion of Lower California, I will close by saying a few words about our mines at home, in

Julian and Banner District.

The Warlock Co. (George McKean's mines), have bought the "Trail" ledge, which will enable them to keep their mill running constantly on good-paying ore. The three owners in this company are wide-awake, energetic men, and will make money fast in this operation. The "Chaparral Co." have a fine ledge in their shaft of ore, estimated worth \$50 per ton. The "Antelope" boys, of whom I spoke in my last, as being in San Francisco buying a mill, returned last month with a 5-stamp mill, engine, boiler and everything in complete order, manufactured at the Union Foundry. In less than four weeks from its arrival here, it was running, having no trouble in setting it up, it being so perfectly furnished and finished in all its parts, that being the usual style of turning off work by Booth & Co.

The first run they made, of 15 tons, turned out a large amount of amalgam. Having used some chemicals, and being inexperienced at the business, everything being new and rough, they amalgamated all the iron, and after retorting, sent it to San Francisco for separation and refining. They afterwards made another run, including refuse ore, that paid \$50 per ton, I am told.

The Madden Co. had 25 tons of ore worked in McMechan's mill, which paid \$50 per ton. They are now working in a body of ore as rich as was ever seen in the district. I saw a large block of quartz from their mine that was full of gold, and one side literally plastered with it. The "Kentuck" is as rich as ever, at 50 feet deep. McMechan and Redman's mine have worked about 40 tons of ore in the last few days, paying about \$60 per ton. In running in their tunnel from the lowest level, they have struck quite a stream of water, and the ore has changed its character very much, showing good silver ore now, with free gold plentifully distributed throughout, and the ledge from five to six feet in width. The Bailey Brother's claim, which is to the south end of the Redman ledge, shows the same character of ore, and on the 450-foot level, (their tunnel running in on their vein) have a six or eight-foot ledge. They have their ditch completed for their water power, and are saving their ore, until they get a turbine wheel and five stamps, to work their own rock.

The new discovery, which I called the King ledge in my last letter, but which is now called the Golden Chariot, made a trail to McMechan's mill and packed 12 13-20 tons of ore on jackasses, as taken out of their ledge, which returned \$181 per ton. The company have let a contract for making a wagon road from the mine to the mill, and will soon let the country hear from them on a more extensive scale. They are down 40 feet on their claim, and the rock is as good as ever, and ledges increasing in size. McMechan will soon have Varney pans attached to his mill, and then you will hear of much better results from the ores in this region. The "Van West," California, "Owens," and "Helvetia" companies, Julian district, are all looking well. This is a very

abridged account of our transactions, but having taken up too much of your space already, I defer further notice until another time.

Very truly, yours,

L. B. HOPKINS.

Julian City, May 29th, 1871.

Smelting at White Pine.

EDITORS PRESS:—A short time since a paragraph was published in the White Pine News in relation to the stoppage of the Alsop furnace, to the effect that it appeared that it would not pay to smelt the base ores of this district. As this statement was reprinted in your mining summary of June 3d, I deem it just that you should receive for publication the following facts, consisting of the figures of expenses and receipts of the last run of the said Alsop works, before the shutting down referred to. These figures were mostly obtained at the furnace at the close of the working on that occasion, and may be relied on as mainly correct:

Expenses.

20 tons high grade base ore, delivered at the furnace at \$22 per ton.....	\$440 00
9 tons second class, do at \$12 per ton.....	108 00
2 tons high grade at \$20 per ton.....	40 00
71 tons gray carbonate at \$11 per ton.....	781 00
1,930 bushels charcoal at 25c per bushel.....	482 50
7 men at \$4 per day for 10 days.....	280 00
6 men at \$3.50 per day for 10 days.....	210 00
7 dollars per hire for wood for boiler, 8 1/2 days.....	60 00
10 days horse hire for Superintendent at \$4.....	40 00
Sundries, oil, steel, hauling clay, etc.....	10 00
8 1/2 days rent of furnace at \$200 per month.....	50 00
Total.....	\$2,504 00

The bullion produced from the above amount of ore was 31 1/2 tons, for which the lessees of the furnace received an advance in Hamilton of \$90 per ton, making \$2,835.

Deductions.

Hauling 31 1/2 tons to Hamilton, at \$4 per ton.....	\$126 00
Assay of bullion.....	5 00
Freight of do. to San Francisco at \$35 per ton.....	1,103 00
Drayage in San Francisco at \$1 per ton.....	31 50
Loss by commissions, dross, etc., at 20 per cent.....	467 00
Expense acct. as above.....	2,504 00—4,236 50
Apparent loss.....	\$1,401 50

But the assays for the silver contained in the 31 1/2 tons of bullion showed 48 1/2, 57 and 60 ounces to the ton. We will take the average of those amounts, about 54 ounces, at \$1 per ounce, which will foot up:

31 1/2 tons at \$54 per ton.....	\$1,701 00
All deductions made.....	1,401 50
Net profits.....	\$299 50

Three hundred dollars profit on an investment of twenty-five hundred for ten days is about 12 per cent. or 36 per cent. a month. It strikes an impartial observer that any business man not inordinately avaricious ought to be satisfied with profits accumulated so rapidly.

But several of the deductions made are evidently too high. That for dross and commissions is manifestly so by at least one-half. This would make an addition to the profits of \$233. So with the freight to Hamilton. Then the silver yield may turn out better in the returns than the average sum taken in the above account.

The fact is, Messrs. Editors, our smelters are not content with the lion's share of the proceeds of our mines, which they were always sure of, have desired to use an expressive White Pine phrase, to "hog it all." How successful they have been in accomplishing the satisfaction of this desire, let the poor miners of this Base Metal Range of White Pine District answer. Many of these poor miners actually hold promissory notes and due bills of some of these very lessees of the Alsop furnace, and even of the proprietors of the great Rothschild Works in Hamilton, amounting to hundreds of dollars in each case. What the prospect is for payment may be known from the fact that the Rothschild Works were sold the other day for the benefit of the attaching creditors, among whom, of course, there were no miners. The latter class have no money wherewith to fee lawyers and pay Court expenses. And the reason they have none is manifest from the above recited facts. If smelting does not pay in White Pine, the miners think it ought, in all conscience, seeing that the smelting operators have obtained full half of their ore for nothing except the cost of hauling it to their furnaces. These operators, especially those who lease furnaces, have very little capital, less skill, and no honesty. They manage to get the bullion out of the way of attachment; and they have no other property to be attached, even if the miners could afford the expense of the process. The truth is the only people whom smelting does not pay in White Pine are the miners of the ore.

TRUTH-TELLER.
Shermantown, Nev., June 12, 1871.

Bull Run District.

EDS. PRESS:—Never did the mines of this district look better and promise more for the future, nor have more claims ever been worked at once, than now. We have about one hundred miners at work on the various ledges, and many more men are prospecting for new ledges, while two pack-trains are steadily employed carrying ore from here to Mountain City, and bringing back provisions as return freight. Such

Large Quantities of Ore

have been shipped from here in this way that we have been notified by Mr. P. F. Davis, the proprietor of Vance's mill, that he has more ore on hand than he can crush in six or eight months. His is the only dry-crushing mill at that place, and has to do all the work; for the miners here are not willing to have their ores worked by the wet process. On account of this large accumulation of ores at Mountain City, Mr. Norton proposes erecting

Roasting Furnaces

at his 10-stamp mill there, to enable him to work the ores from here; yet, notwithstanding this, there is an increasing demand for a first-class 10 or 20-stamp mill, and a good Stetefeldt furnace.

It has been said that Cope and Bull Run districts together cannot give steady employment to the mill already in operation at Mountain City. Allowing even this, for argument's sake, there are still great reasons for believing that a first-class mill would get even more ore than it could crush. The Auburn mill at Reno will buy ore assaying \$600 per ton, at 80 per cent. of assay value; also the Manhattan mill at Austin will work high-grade ores up to 90 and 94 per cent of assay value. The best we can do with the mill here is to have our ores worked up to 80 per cent. of assay value, and pay \$35 per ton for the process, while the other mills will buy the ore out and out for 80 per cent. of the assay value; thus the difference between a first-class and a second-class mill is at least \$30 per ton in favor of the former. Hence it will be seen, that if

A First-Class Mill

was erected here, the \$30, besides \$20 more for the freight we pay from here to Mountain City—the small sum of \$50 per ton—might be saved us, which would be a nice profit of itself. Yet, notwithstanding all these drawbacks, our claims are still being worked with success.

The work going on in our

Principal Mines

is as follows: The Blue Jacket is driving a tunnel to drain the main shaft; at the Foundry a very rich body of ore has been struck, and hundreds of tons of very high-grade ore are in sight; there is a very rich show of ore at the Monument too; the Johnson Co. is sinking an incline on their ledge, and taking out some very good ore; the Nevada Co. also are bringing out rich ore from their ledge, which is six feet wide, and gives a good show of minerals all through; the Norwich mine, is looking better than ever, it has been worked down forty feet on the ledge, and there is an abundance of ore in sight, which is better than that found at the surface; the Erie Co. are also at work on their ledge, which promises well. Many other companies are also at work, and more prospectors are coming in every day.

Lively times may be expected in Bull Run soon; for Mr. Norton, millman, and Mr. H. M. Grant, banker at Mountain City, have just visited this district, and are so much pleased with it that the latter, who has the management of the Norton mill, will erect furnaces, and roast ores from this place.

BULL RUN MINER.

June 5, 1871.

ANGORA GOATS IN THE MOUNTAINS.—Mr. Elijah Tompkins, says the Nevada Transcript, recently passed through Nevada with a herd of some 200 Angora goats, which he was taking to Bear Valley, where he proposes to remain with them the balance of this season and through next winter, with the view of testing the capacities of this animal to sustain high altitudes in this climate. With the exception of one full-blood buck and ewe and one pair of fifteen-sixteenths blood, his herd is half and three-quarter bloods. He intends to grade them up to fifteen-sixteenths, which he considers practically as good as pure blood, and the fleeces of which are said to be worth from \$10 to \$12 each. Mr. Tompkins thinks that Bear Valley will excel any place in the State for raising these goats, as it corresponds nearly to the elevated plains of their native country.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

SCHENECTADY MINE.—*Chronicle*, June 10th: We learn that the company intend shortly to commence the erection of a mill for the reduction of its ores.

AMADOR COUNTY.

CASCO MINE.—*Dispatch*, June 17th: J. R. Hardenberg, superintendent and owner of the Casco, at Middle Bar, contemplates starting up his mill again in a few weeks.

CALAVERAS COUNTY.

CONDITIONALLY SOLD.—*Chronicle*, June 17th: We are informed that the mine belonging to Matthews, Foster & Co., near Whisky Slide, has been conditionally sold to a company of San Francisco capitalists. An agent has made a thorough examination of the mine, and taken out a quantity of rock for crushing. Should the yield be satisfactory the sale will be consummated. A shaft 120 feet in depth has been sunk on the lead, and from top to bottom the rock makes a first-rate showing.

MOSQUITO GULCH.—Twelve tons of rock from the mine of Teusch & Mischler yielded \$1,505, retorted gold. This is an average of \$125.41 per ton. The quartz was crushed in Harris' mill at Sandy Gulch. Some of the richest pieces of rock we ever saw were recently shown us from the mine of Hoerchner, Siegler & Keyes. The pieces were about equally composed of gold and quartz.

The mining interest is more promising for the future and in a more favorable condition at present, than for years.

INYO COUNTY.

KEARSARGE.—*Independent*, June 10th: A rich strike has been made. At the lowest depth reached, a body of ore two feet wide has been opened, which is immensely rich. Before this development was made, Mr. Lockhart, an experienced mining engineer, had estimated the value of the ore in sight at \$1,400,000. The mill has been completely overhauled, and works to perfection. A 13½-inch Leffel wheel furnishes 40-horse power. The capacity of the mill is 30 tons per day.

EXTENSIVE OPERATIONS.—A New York company are making ready for putting up a furnace and reduction works on Cottonwood Creek, west of Owens' Lake, on a more extensive scale than any other in the county. They have already a building erected, and a strong force putting up another.

ITEMS.—Some of the buildings attached to Beaudry's smelting works were burned on the 6th inst. Loss \$10,000....Mr. Wingard, of the Silver Sprout Co., is in town, and proposes to resume operations on the mines, and start up the mill....Isaac Friedlander has made application for patent for the Eclipse mine.

NEVADA COUNTY.

NORTH SAN JUAN.—*Cor. of Transcript*, June 14th: The Consolidated claims of Messrs. Bowen, Davis, Beach and others, are being vigorously worked. These claims are paying handsome dividends. A few days ago they cleaned up but five boxes and took out seventeen hundred dollars in twenty days' run. The claims are worked with the Hopkins' pipe.

PLACER COUNTY.

GOLD.—*Stars and Stripes*, June 15: From Michigan Bluff, Turkey Hill and Last Chance the reports for the past week are encouraging in the extreme. From the Weske claim—twenty men working six days—the yield left to the owner a dividend of \$4,030 for the week. Weske now has about four feet in depth of pay dirt and there is every indication that he is on the eve of striking the main channel, when he is sanguine of a deposit far surpassing anything he has yet worked. Last Saturday, Hon. John Yule brought over from his claims near Last Chance to Michigan Bluff, \$1,740, the product of 133 days' work on the time-table. This gives \$36.75 per man per day as the yield of the Weske, and \$13.60 per man per day as the yield of the Yule claim, making no allowance for considerable dead work in both claims. In addition to the above, the Van Emmon brothers last week cleaned up 106 ounces in the Big Gnn claims, Michigan Bluff.

DUTCH FLAT.—Gold Run Cor. of same: I learn that Mallord has made a very profitable run. With four men and 300 inches of water he realized \$175 per day. This in bottom ground only, having one small cave from the main bank. A miner from Bear river informed me that very

rich diggings have been discovered twelve miles above this place. He reports many prospectors at work.

QUARTZ MILL SOLD.—*Herald*, June 17th: We learn that the St. Patrick Co. has bought from John McFadden the Empire Quartz Mill, in Ophir District.

PLUMAS COUNTY.

NEW TUNNEL.—*Quincy National*, June 10th: The Boardman tunnel in which big prospects were recently obtained, and which proves the existence of a very rich gravel range between La Porte and Gibsonville, has turned out to be too low, and arrangements have been made to run a new tunnel. Some very rich claims will undoubtedly be opened.

ITEMS.—*National*, June 17th: Pierce & Co., whose hydraulic claims are near the old Presby place, on the Honey Lake road, recently cleaned up over \$1,800 for forty days' work....The Eureka is paying out \$1,000 per day....Government patent has been applied for to the Washington Co.'s claim near Eureka.

SIERRA COUNTY.

RICH LEDGE.—*Messenger*, June 10th: Johnson & Co. have discovered another rich quartz ledge near American Hill. Some of the richest specimens ever found in this county have been taken out, consisting of solid chunks of pure gold.

GOOD DIGGINGS.—*Sierra Age*, June 17: At the Rattlesnake diggings, on the head of the Yuha, the Maul & Wedge Co. have averaged \$80 per week this spring and have not yet cleaned up. On the east side the Enterprise boys are yet piping and their show is splendid. The Empire Co. have taken out more gold than ever previously. The ground on each side of the ridge, to all appearances, is of unlimited extent.

TUOLUMNE COUNTY.

NICE THREE DAYS' WORK.—*Sonora Democrat*, 17th: We were shown on Monday at Wells, Fargo & Co.'s a lot of gold amounting to \$5,000, the result of three days' labor for two men in a pocket vein near Tuttletown. The larger portion had been pounded out in a mortar, and there was a respectable lump of amalgam.

YUBA COUNTY.

MINING NEWS.—*Appeal*, June 18th: We learn that the two main companies at Camptown are doing well. Jones & Co. and Hugg & Co. are both working a full force and reaping a fair return. Water is plenty. The little towns of Railroad, Young's Hill, Brandy City and other camps are all prosperous.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—*Elko Independent*, June 17th: We learn from a gentleman at Mountain that prospects never looked better. He says the Independent is the richest mine on the coast. Sam Hendy's mine, the Pride of the West, is second to none. On Wednesday at the depth of 70 feet, the workmen struck an almost solid mass of silver. The Mountain City mine is in the near vicinity and the company will soon be taking out rich ore. The Argenta struck an 8-foot ledge a few days since in its lower tunnel.

ELY DISTRICT.

BULLION.—*Record*, June 15th: Wells, Fargo & Co. shipped, on June 12th and 14th, by the way of Salt Lake, bullion valued at \$35,465.96.

EUREKA DISTRICT.

PHENIX FURNACE.—*Sentinel*, 14th: This will be turning out bullion to-day, and promise is made that very rich will be the result.

EMMA ELIZABETH.—This is the name of a mine half a mile south of Vanderbilt, belonging to A. F. Jones of California. Mr. J., his wife and three children, have been at work on it for months, turning out little rough silver bars meanwhile enough to pay expenses, and now it is opened sufficiently to sell. Experts pronounce it good, and Mr. Jones will doubtless get a price which will make him comfortable for life.

MINING SALES.—Same of 15th: The Phenix Co. has purchased the Jenny Lynch mine at a round price. It is one of the latest discoveries made. Judge Delos Lake, of San Francisco, has purchased the Otho mine for \$12,000 coin.

SPRING VALLEY.—In this district, 10 miles west of Eureka, 200 mines have been recorded, and all of them more or less worked. The ore has been milled at Austin, and has paid a large profit even with the expense of 65 miles of transportation, where there is no return load.

EL DORADO SOLD.—Same of 18th: This mine has been sold by Daugherty and Capron to R. S. Bernard, for \$20,000. It is a good purchase.

REESE RIVER.

THE Reveille of June 16th says: The Citizens' mill is approaching completion. The boilers and engine, batteries and pans are in position, and a portion of the roasting apparatus is on the ground, the balance being expected within a couple of days. In two weeks more steam will be gotten up.

WASHOE.

OCCIDENTAL MINE AND MILL SOLD.—*Enterprise*, June 14th: James G. Fair and Mark Strouse have purchased the Occidental mine and mill, and will in a short time have both in full blast again. The mine is well opened and well drained and ventilated, and sufficient water flows from the main tunnel to run the mill. There are large reservoirs for saving tailings, and everything is in good order.

MILL SOLD.—We understand that the Buckeye Co. have purchased the mill formerly owned by the Hope Co., Silver City. It is a 10-stamp mill, almost new, and furnished with all the modern improvements.

BULLION.—There were yesterday received at the Bank of California, in this city, 10 bars of bullion from the works of the Carson Valley Tailing Co., valued at \$5,544.

IMPERIAL MINE.—No paying ore has yet been developed in the new prospecting drifts. They are now cross-cutting to the east from a "rise" from the 1,300-foot level.

NEW TAILINGS MILL.—Louis Japin, of Dayton, has torn down his old mill, known as the Reservoir mill, and is preparing to erect a first-class new mill on its site. A force of workmen is framing timbers, etc. The mill will be furnished with all the modern improvements.

NEW DEVELOPMENT IN THE SAVAGE.—Same of 17th: A new body of ore just developed at the 500-foot level, appears likely to prove of great value. A drift has been run into the deposit 15 feet, and a cross-cut made 12 feet, without finding wall or limit to the ore.

CALEDONIA.—This mine is now yielding from 80 to 100 tons of ore per day, which is being crushed at the Piute and Sapphire mills. This is from the 300-foot level and above. The ore breasts in this part of the mine are looking exceedingly well. The company have sunk a winze on the 300-foot level, near the Overman line, 120 feet, and from this they are drifting south to connect with their main shaft 300 feet distant.

GOULD AND CURRY.—Same of 18th: This company are deepening their shaft and are down three feet deeper than the old bottom. The rock is quite hard. A considerable amount of water is coming in, but not more than is easily drained by a 6-inch pump.

SUTRO TUNNEL.—The tunnel was yesterday in 2,127 feet. The ground is good and everything is progressing favorably.

ITEMS.—*Gold Hill News*, 19th: The new Lady Bryan Co. made the second clean-up on Saturday, yielding 2,700 ounces of crude bullion. This will leave over \$8,000 in the treasury. Last Friday they struck a deposit of better ore than they have yet been working, at the 80-foot level, south of the shaft, which promises to be extensive. The strike reported in the Savage mine, at the 500-foot level, near the Gould & Curry line, is said by those who know best, not to amount to much. They have struck hot water at the 10th or lowest level. The Hale & Norcross are getting along finely with the retimbering of their shaft, and have sunk their incline from the lowest level, about 80 feet. It is 50 feet south of the shaft.

WHITE PINE.

REVIEW.—*News*, June 17th: We have made a personal examination of the principal mines of Treasure Hill, this week, and find a marked improvement in all. In the Ward Beecher the ore in sight is pronounced by competent judges sufficient to keep the 60 stamps of the International mill running for the next six months. The Ward Beecher Consolidated is constantly shipping ore to the Manhattan and Dayton mills. The ore shute is completed, and everything about the mine is rapidly getting in shape for active working. The South Aurora is getting good ore, which is being daily shipped to the Stanford mill. The O. H. Treasure, Silver Wave, Silver Wedge, and other mines at the north end of the ore channel, are all developing fine bodies of ore. The tramway continues to run regularly, carrying large quantities of ore from the Ward Beecher, North Aurora and Eherhardt to the International mill, but notwithstanding this, there is a large number of quartz teams employed. Many more good miners than are now here can readily obtain employment. In the hills west of Hamilton some very good mines are developing. The Silver Plate, Truckee, and Bowie are sending high-grade ore reg-

ularly to the Big Smoky mill. The bullion shipments for the week foot up \$21,976.69.

Arizona.

BRADSHAW.—*Prescott Miner*, June 3d: The Tiger is being worked upon for a distance of six miles, and the ore from every shaft and tunnel is rich in silver and gold. The same is true of the Lion, Lioness, Cougar, Gray Eagle, Eclipse, Badger, Bradshaw, Del Pasco, Yreka, Hunter, Lorena, and other ledges. Scores of mining experts, from Nevada and California have visited these mines, and have said sufficient to satisfy us that they looked upon Bradshaw district as the greatest find ever made in any country.

We have good reports from the Davis mine, Hassayampa district, which at depth of over 100 feet, is 9 feet thick, and exceedingly rich.

From Big Bug, Walker, Weaver, Turkey Creek, Black Canyon, Black Hill, Santa Maria, the distant Wallapai, Salt and Colorado river district come cries of "rich rock, and plenty of it."

SALT RIVER.—M. W. T. Boyd writes us from Mill City, that a party of prospectors recently discovered two rich gold ledges, a short distance south: "We have tested only one of the ledges, which gives \$50 per ton, in free gold."

Colorado.

ITEMS.—*Herald*, June 7th: The shaft of Bennett, Gray & Root, on the Jones & Matteson, is 90 feet deep, and the pay crevice is 5 to 8 feet wide, with over 3 feet of smelting ore. Nearly 70 tons of first-class smelting ore have been taken out during the week, besides 18 or 20 cords of mill ore, yielding 7 ounces of gold to the cord....J. P. Hardesty, in the next claim east, is down 40 feet, and is taking out six-ounce mill ore....Cree, on the Kent Co., is said to have cleared \$300 last week....The mills of Nevada, Central and Black Hawk, now in operation, are crowded with ore....E. L. Saulsbury is running the Keith 20-stamp mill on North Clear Creek on custom ores. Sudeburg lode, worked by Nat. Young, gives, after the smelting ore has been taken out, 8 to 12 ounces of gold per cord.

FOUR-MILE CREEK.—*Caribou Post*, June 10th: The bed of this creek has long been worked for gulch gold, but with better success now than ever before. One party report an average of half an ounce per day to the man.

GOLD HILL.—In Follen's White Rock mine two men raise the ore nearly as fast as ten stamps can crush it.

CLEAR CREEK COUNTY.—Ten tons from the J. J. Roe, shipped to New York, yielded 500 ounces silver per ton. Two lots of 8 and 11 tons, worked by Palmer & Nichols, gave 105 and 107 ounces silver per ton....The Washington mill is running to its full capacity, with a supply ahead from the Brown and Terrible lodes, and the Monticello tunnel ore. The cost of concentration by the Krom machine is \$7 to \$8 per ton, and the capacity of the works ten tons per day.

CARIBOU MINE.—Same of 17th: The main shaft is now 180 feet deep and has a five feet crevice. The assay value of the ore from 130 to 180 feet is 300 ounces....The mine was discovered in the spring of 1870. Since that time \$240,000 worth of ore has been taken out, nearly all in developing the mine, for no stoping has been done in the last 80 feet, where the crevice is best.

The Idaho lode gives an average of 321½ ounces per ton.

GEORGETOWN.—*Miner*, June 7th: The Marshall Co. shipped during the past week 150 pounds of silver bullion, the product of 3½ tons of ore from the O. K. lode....Work is actively going on in the Marshall, Burleigh, Monticello, Eclipse, and several other tunnels....In the St. Luke lode, Sherman mountain, the pay streak is ten inches in width, and the lowest assay has been \$490 per ton....Terrible ore at lower depths has less zinc and more lead....Palmer & Nichols Reduction Works' bullion total for week, \$3,555....Last run of Mammoth ore returned 170 ounces per ton....Placer mining is in full blast in Summit county.

GOLD HILL.—*Register*, June 7th: Sleppler & Holt are working the Alamakee lode. At a depth of 30 feet, the crevice averages eight inches in width. Eleven loads of ore from this mine, lately run at Bottolfsen's mill, yielded ninety ounces of gold, or over 30 ounces per cord.

The ore from the Puzzle lode, Bobtail Hill, yields, under stamps, 20 ounces of gold per cord.

Four cords of ore from the "Beacon of the West," in Russell, gave 50 ounces of fine gold.

Idaho.

ITEMS.—*Avalanche*, June 10th: The Minner mill is being repaired and will be started up in a few days. The *Cosmos* mill started up on Wednesday, and the *Webfoot* on Thursday. Most of the ore now being taken from the Chariot comes from the fifth level south. A contract for the sinking the main shaft 100 deeper was to have been let yesterday. The new quartz yard will soon be completed. The working force in the Chariot will be largely increased next week. Work has been resumed on the Ida Elmore. Superintendent Hyde had succeeded in taking all the water from the Peck & Porter shaft, which is 300 feet deep. Stopping will immediately commence both north and south of the shaft, as the Mahogany Co., has conceded 71 feet of the north end of their claim to the Peck & Porter, whose shaft was formerly the boundary line between the two mines. Morrison & Co., are working on a ledge a few rods east of the Peck & Porter. Quite a pile of quartz has been taken from the tunnel, which is in 50 feet. War Eagle mill is running on Chariot ore but will commence on Peck & Porter Monday. Work is going on as usual in the Empiro, Skookum, Red Mountain, Illinois Central and Udola & Tallula Peck, on War Eagle mountain, and on the Ruby City and Boonville, on Florida mountain. Quite a number of newly discovered veins are being prospected. The warm weather has caused an abundance of water and the placer mines are all in full blast.

MAHOGANY MINE.—Things are assuming a lively appearance. Supt. Minner is pushing operations on the ground north of the claim held by Thompson, Cook & Co. The steam hoisting works formerly on the Allisou are being moved thither and will be running in ten days. Foreman Pete Nick is putting down a shaft. On Wednesday it was down 110 feet. Bob Morrison is sinking a shaft 300 feet south of Thompson & Co.'s and is down nearly 30 feet. We understand that the latter company have notified Morrison to cease work. Taken all in all, it looks as though serious trouble would yet arise out of the Mahogany complications. Perhaps another mining war.

SNAKE RIVER.—Owing to the rising of the water, the miners have been compelled to leave the low grounds and commence work on the more elevated bare.

BOISE BASIN.—*World*, June 8th: The Gold Hill Co.'s mill last Sunday, after a four week's run, cleaned up \$18,000. The Co. has no debts, and has abundant supplies of all kinds on hand. No stock for sale. The Co. has purchased the old Pioneer ledge from Mr. John Parham, paying him some \$2,500.

The assay office of B. M. Durrell & Co. of this city, assayed, during May, 152 gold bars valued at \$115,597.62. All this was Besin dust, and the yield only of the first month of the season.

Montana.

KNAPP'S BAR.—*Montanian*, June 8th: This is next above Pilgrim. Messrs. Knapp and Woods have a seventeen feet bank of gravel, 100 to 200 feet dump, and the best lay out for mining in the country.

BLACKFOOT.—*Cor. of New North West*, 10th: The camp is living up, and considerable money has already been taken out. The clean-ups we heard of were: O'Rourke & Hogan, \$1,300; Gallagher & Co., \$1,200; Dunn, \$1,200; Spears & Co., \$1,500; McDonald & Co., \$500; Shirley & Co., \$500; McCoy Bros., three of \$1,500 each. Smith & O'Rourke have sold their bed-rock flume in Ophir, to Sheldy, McCormick & Co., for \$3,000, and it will now run night and day.

JEFFERSON GULCH.—Harris Bros. have rather the best ground, and their only clean-up this spring yielded \$50 per day to the man. Seven pipes are running the gulch and several companies are ground sluicing.

CALIFORNIA GULCH.—With the exception of 400 feet, owned by Mr. Mead, the gulch is claimed by the California Flume Co., and is paying its four proprietors a handsome dividend. It is \$20 gravel and is extensive.

CARPENTER'S BAR.—Pounde & Co., are running 5 hydraulics and 24 men, have a telegraph flume half a mile in length, which has been put up at a cost of \$20,000. They intend to push their bed-rock flume up half a mile further and run the tailings off the lower ground. It is an extensive piece of work.

PILGRIM BAR.—The clean-ups, so far as learned, on Sunday, June 4th, were: Rowe & Bell, \$2,000; Catching & Smith, one flume with scarcely any bed-rock, \$1,500; Fisher & Co., \$700; Joe Steele & Co., \$1,100; Hogan & Co., \$1,000; Thos. H. Irvine

old $\frac{1}{2}$ interest in the Fisher & Breleford ground for \$5,000 cash.

BUTTE.—Apton & Hill cleaned up for their first run, (four men and one hydraulic) \$2,500, and for the second week \$6,000.

GERMAN GULCH.—*Independent*, June 9th: Every company is ground sluicing. The mine will average for the season, about \$12 per day to the haul, although some will pay double this.

FRENCH GULCH.—Allen & Co. have their hydraulic in operation, and are doing well. The other companies, are well pleased so far. The Spanish Co., on First Chance gulch, have one of the best claims in the Territory.

PIONEER.—Everything looks lively. Doc Young & Co., cleaned up \$2,640; the Pioneer Co. \$2,378; and the Dutch Co. \$2,182.

HENDERSON GULCH.—David Hennessey reports everything prosperous. Among clean-ups, he mentioned:—Shields & Co., \$900 for two weeks' run; Connors & Co., \$900 for fifteen days; Hennessey & Co., \$1,400 eighteen days; Butler & Co., \$500 for two days; Ferguson & Co., \$2,000 for fifteen days.

PHILLIPSBURG.—The Cole-Sanudere furnace is again in operation under favorable auspices. A project is on foot to erect stamps and concentrate the Trout ore, and ship it out of the Territory for reduction. Joseph Alger, Sec. of the St. Louis and M. M. Co., came in from Phillipsburg last night. He has just completed a run of 22 tons of rock from the Snager ledge—a new discovery—that yielded silver bars weighing 310 pounds, of the estimated value of \$4,800.

CEDAR CREEK.—We learn that claim No. 64 caved a few days ago, and Langenham's flume, was broken, allowing the water to fill up all the ground from 62 to 67, throwing 40 men out of employment. The price of ground in upper Cedar, as far up as Snow Shoe, has advanced greatly, owing to fine prospects obtained within the last three weeks.

Utah.

The *Corinne Journal* of June 16th says that Messrs. Alpey and others are opening a ledge seven miles northeast from that city, in the Wasatch range, which is fourteen feet wide and traceable 1,400. The ore is galena with streaks of chloride. Assay returns from samples just sent to Salt Lake are expected to be something remarkable.

REDUCTION WORKS.—Heffernan & Goff are putting forth their utmost exertions to complete their reduction works. They have on hand an immense quantity of fuel and ore.

A Salt Lake correspondent of the *Enterprise* writes June 11th of the Emma mine, that there are 150,000 tons of good melting ore on the dump; and of Ophir District, that the best of the ores yield an average of \$200 per ton, and there are many thousands of tons on dumps awaiting milling facilities, being not suitable for melting.

MACCARONI WHEAT.—Mr. S. Baker, who lives about four miles from Hollister, in Monterey county, has about 30 acres of this wheat growing on his place. Its yield is much greater than that of common wheat. A Mr. Nash, a year or two ago, sowed fifty pounds of this grain somewhere in Santa Clara Valley, and it yielded him fifty sacks. If the thirty acres which Mr. Baker has in does well, it is his intention to sow more next year. There is a mill in this city which prepares it for use. The grain is about three times the size of common wheat. In France this kind of wheat is ground into flour; here in California, and other parts of the United States, it is used for macaroni soup.

AGENTS CAN MAKE FROM \$1,000 TO \$5,000 A YEAR in almost any section of the country, selling Dana Bickford's new and improved FAMILY KNITTER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Send stamped envelope with full directions for an illustrated book. Address: DANA BICKFORD, Vice President and General Agent, 689 Broadway, N. Y. 23v22-6m-hp

\$5 TO \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7 strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address: Hudson River Wire Works, 76 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23v1-12mhbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave. New York. Good work at high prices if desired. 23v1-12mhbp

PATENT BROKERS.—Inventors having valuable patents and needing reliable assistance in selling them should consult Webster & Co., No. 17, New Montgomery street, under the Grand Hotel, San Francisco.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT.	OF SALE.	
Alfons G. M. Co., Nev. Co., May 28, 25c. June 26—July 17			
Daney, Lyon Co., Nev., June 15, \$2.50, July 18—Aug. 5			
Eagle L. M. Co., Cal., June 14, \$20. Aug. 9—Aug. 14			
Gen. Lee, White Pine, April 21, 10c. May 29—June 20			
Donald & Curry, Va. City, May 18, \$16. June 22—July 13			
Hanaco, Del Norte Co., April 28, 5c. June 10—June 26			
Imperial, G. H., May 22, \$10. June 24—July 13			
Kincaid Plat M. Co., Tuo. Co., April 27, \$2.50, Ju 10—Ju 14			
Keutuck, May 9, \$10. June 12—June 29			
Latawama M. Co., White Pine, May 16, 20c. Je 22—Ju 11			
Mahogany, Owyhee Co., 1. T., May 30, \$2. July 1—July 17			
Marceline, Nev., June 2, 20c. June 11—August 15			
Mauntauok S. M. W. P., April 24, 5c. June 1—June 19			
Nina Rica, Placer County, April 25, 20c. May 30—June 26			
Meadow Valley Ex., May 1, 50c. June 12—July 3			
Mountain City M. Co., June 8, 25c. July 18—Aug. 8			
Neveda L. & M. Co., May 8, 4c. June 8—July 3			
Noondan, White Pine, Nev., April 10, 20c. May 15—June 7			
Ophir, Placer Co., Cal., May 30, 60c. June 30—July 17			
Overtail, C. H., April 28, \$5. June 3—June 24			
Pluto M. Co., May 24, 12c. June 20—July 17			
Salamander O. & M. Co., April 4, 35c. June 12—July 10			
Sierra Iron Co., May 17, 60c. June 25—July 20			
Guercor, G. H., May 6, \$1. June 8—June 30			
Taylor, El Dorado Co., May 27, 10c. July 12—August 4			
Taylor M. & M. Co., El Dorado, April 14, 25c. May 24—J 12			
Tecumseh, Calaveras Co., April 11, \$3. June 12—July 6			
Yosemite, Lander Co., Nev., April 12, \$1. May 23—June 19			

MEETINGS TO BE HELD.			
Calaveras M. Co.	Annual Meeting, June 30		
Imperial M. Co.	Annual Meeting, June 27		
Mahogany M. Co. (Cal.)	Special Meeting, July 17		
Mahogany M. Co. (Idaho)	Annual Meeting, June 27		
Mammoth Grove M. Co.	Annual Meeting, June 30		
Ophir M. Co.	Annual Meeting, July 3		
Washington M. Co.	Annual Meeting, June 26		
LATEST DIVIDENDS—(Within Three Months).			
Chollar-Potosi, \$2.	Payable June 10		
Chollar Potosi, \$5.	Payable May 20		
Crown Point \$10.	Payable June 10		
Eureka, div., \$2.	Payable May 6		
Eureka (Cal), \$1.	Payable June 7		
Eureka Cons., 75c.	Payable, April 20		
Golden Chariot, div., \$7.	Payable March 10		
Hale & Norcross, div., \$5.	Payable April 10		
Natoma, div., 1 per cent.	Payable June 5		
North Star, \$3.	Payable May 10		
Redington, 1 per cent.	Payable June 5		
Yellow Jacket, \$2 50.	Payable June 10		

—Advertised in this Journal.

READERS will favor ourselves and advertisers by mentioning the fact when they obtain information from our columns.

PSYCHOMANCY.—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Fascination or Soul Charming, 400 pages. Full instructions to use this power over men or animals, at home or to Mesmeric, Mesmerism, Trance or Writing Mediums, Divination, Spiritualism, Alchemy, Philosophy of Omens, and Dreams, Brigham Young's Harem, Guide to Marriage, &c.; 200,000 sold. Sent by mail in cloth for \$1.25, paper covers, \$1.00. The Philadelphia Star speaking of the book says its author is HERBERT HAMILTON, B. A., the celebrated Psychological lecturer, and the publisher, T. W. EVANS, one of the oldest Publishers and Publishers in the city, the reputation of whose name is a sufficient guarantee of the merits of the work. MR. EVANS has spent \$50,000 already in advertising and getting out this extraordinary book. As in Psychology read and he convinced of this wonderful occult power.

NOTICE.—Any person willing to act as Agent will receive a sample copy FREE. As no capital is required, all desirous of the employment should send for the work, inclosing 10 cents for postage, to T. W. EVANS, 418 Eighth street, Philadelphia, Pa. mat-lamst

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Graphic* says: "Various European manufacturers have attempted to rival a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other cocoa in the market. Entirely soluble in water, delicate in taste, and of a concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable and valuable beverage." Sold in packets at all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolates Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 16b-15

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanics' Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care of J. H. GILMORE, San Francisco.

AN ESTABLISHED REMEDY.—"BROWN'S BRONCHIAL TROCHES" are widely known as an established remedy for Coughs, Colds, Bronchitis, Hoarseness, and other troubles of the Throat and Lungs. Their good reputation and extensive use has brought out imitations, represented to be the same. OBTAIN ONLY "Brown's Bronchial Troches."

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office. apl-hd-4f

ALL those who wish to see clear and distinct, should visit C. MULLER, No. 205 Montgomery street, where every description of glasses may be seen; and what is more desired than a good eyeglass to those whose optical illusion has been impaired?

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Metallurgy and Ores.

Richardson & Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v21-lys

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, &c. One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

CALIFORNIA ASSAY OFFICE

No. 512 CALIFORNIA STREET.

One Door West of Montgomery. SAN FRANCISCO.

J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, &c. 10v20

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical

CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

O. W. STRONG.

W. L. STRONG.

C. W. STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22tf

F. MORRIS,

Practical Assayer and Metallurgist,

Nos. 30 and 36 Fremont street,

SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 19v22-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS,

4v16-3m

NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

RIOTTE & LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 22v18t

THE OFFICE OF

"THE BUREAU OF MINES"

AND

Mining Statistics of the Pacific Coast"

IS LOCATED FOR THE PRESENT AT

No 729 Montgomery Street, Room No. 3.

OFFICE HOURS—From 11 A. M. until 3 P. M. for the Registry of Mines.

Parties desiring to communicate by letter, will obtain

Prompt and Reliable Information

Respecting Mines and Mining Property, by addressing

E. P. HUTCHINS,

Secretary of "Mining Bureau Pacific Coast,"

San Francisco, Cal.

Care of Lock Box 406.

22v-18-tf

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURED BY—WILKINS ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 1TH.

FURNACE FOR ROASTING ORES.—John P. Arey, Georgetown, Col. Ter.

BUCKLE.—George F. Stephens, Portland, Or., assignor to himself and John Nation, same place.

SEWING-MACHINE.—Hannah G. Suplee and John H. Mooney, San Francisco, Cal.

REPEATING ORDNANCE.—Alfred H. Townsend, Georgetown, Colorado Territory.

FURNACE FOR ROASTING ORES OF THE PRECIOUS METALS.—Jonas Sely Akin, Rye Patch, Nev.

MANUFACTURE OF PNEUMATIC GAS.—Homer Bloomfield, San Francisco, Cal.

PARLOR-SKATE.—Oliver Benjamin Oakley, San Francisco, Cal.

Sacramento Seminary.

The commencement exercises of this popular school, under the charge of Prof. Perry and wife, assisted by an able corps of teachers, took place in Temple Hall, Odd Fellows Temple, last week and was a great day in the history of the seminary. The beautiful hall was filled with nearly a thousand persons, representing the parents and guardians of the pupils, from all parts of the State, with the many friends of education and the seminary both in and out of the city.

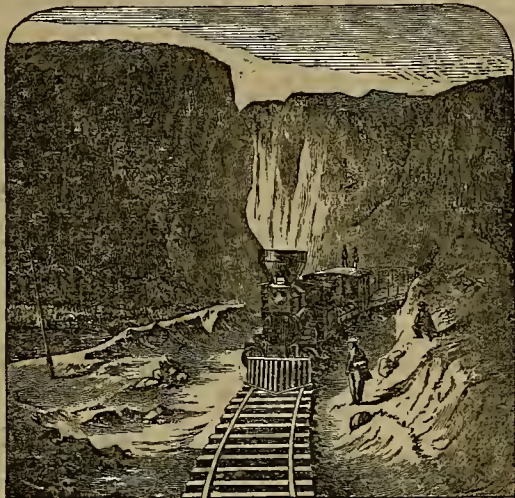
Dr. Carr, of the State University, delivered a most massive and brilliant address on the importance of female education, claiming for woman the right of high mental culture, asking for her no change of sphere, no masculine endowment, but the privilege of being *clever* as well as good, and the acquisition of that varied power and influence that education can give.

The exercises of the occasion were in the following order:—Music—Instrumental duet, by Misses Lorenz and Lindsay; Prayer; Music—Anthem, "Praise the Lord;" Essay—by Miss Julia E. Lorenz, "The Ideal Our Beacon Light;" Essay—by Miss Rosa E. Caples, "Conscious Merit the Richest Reward;" Music—solo and chorus, "Sweet Vale of Rest;" Essay—by Miss Sallie E. Lindsay, "Moral Bravery;" Essay—by Miss Lizzie M. Avery, "The Mystery and Sublimity of Human Life;" Music—Instrumental, by Miss Rosa Caples; Conferring Diplomas; Music—Chorus, "The Angel's Serenade;" Address—by Prof. E. S. Carr; Music—Duet, instrumental, by Miss Ella Follett and Prof. G. J. Gee; Benediction. For two hours the audience, many of them standing, listened with wrapt interest to the exercises.

The essays by the graduates were all of a high order of excellence, showing correctness of thought and arrangement, united with beauty of diction. Where all were so commendable it seems hard to distinguish. If we should assign to any superiority over the others it would be to

the last essay, entitled the *Mystery and Sublimity of Human Life*. The music of the occasion delighted the fastidious, and received the praises of many eminent professors present, a class of persons by no means easy to please.

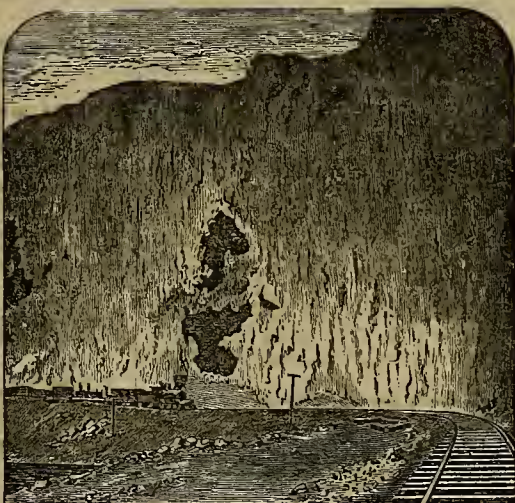
We attended the examination of the graduating class in the higher studies of their course and have witnessed no better examination anywhere. The young ladies showed, to all who were privileged with being present, that the years of study had not been in vain; that they had been years of discipline and culture; that the pupils had attained to a *status* of mind and manners that shed lustre on their *Alma Mater*, and which was to them the richest reward



FIRST CONSTRUCTION TRAIN PASSING THE PALISADES.
673 miles from San Francisco—Altitude 4,800 feet.

of toil. This seminary occupies a place with the best institutions of female education in this or the older States, and its course of studies (whilst so arranged as to afford assistance to any from the city or country who wish only to pursue a partial course) aims to add to the best intellectual and moral training those accomplishments that adorn life and add so much to personal influence and happiness.

Many additions have been made to the



ALCOVE IN PALISADES.
675 miles from San Francisco—Altitude 4,800 feet.

seminary, in making its appointments complete in the departments of music, drawing, painting and the modern languages. New grounds also have been added for a riding course, thus providing for the exercise and amusement of the pupils.

The buildings, erected expressly for the seminary, are located on the most beautiful site in the city, and few places can furnish a more delightful home for a young lady where the advantages of a liberal education may be enjoyed.

The next term of the seminary commences on the 1st of August.

YOUNG TROUT.—Last week, 3,000 young trout, from New York State, were placed in the fish-pond of Badlam & Conway, near Calistoga.

Editorial Notes Eastward.—7.

The Palisades.

Our lively friend, the Humboldt, whom we have been following so long, has prepared for us a mighty path. Some six miles before coming to the town of Palisade, we saw some high cliffs and rugged crests which excited our admiration as we rushed through Twelve-Mile Cañon, where the cutting is some of the heaviest we had ever seen. But all this vanished from our sight, and we entered the famous Palisades. Here our watery companion has been wearing away the rocks to a fearful extent, so that we shudder as we look upward from the platform of the car at the



TOP OF PALISADES.
675 miles from San Francisco—Altitude 4,800 feet.

jagged and overhanging cliffs, which threaten at every moment to fall upon and annihilate us. They received their name from the resemblance they bear to the renowned upright walls of rock on the Hudson river.

At several points in the side of the cliffs, we see large hollows, or caves, where the rock has crumbled and fallen away, and we wonder what hobgoblins, or spirits of the glen, make these their trysting-place. The



PALISADES ACROSS CANYON.
680 miles from San Francisco—Altitude 4,800 feet.

largest of these wierd caverns is called the Alcove.

While these things have been occupying our thoughts, the sturdy locomotive has been puffing away at its arduous task of dragging our heavy train up the steep grade, and we now have attained the altitude of 4,800 feet above the sea. Now we begin to descend, and the scene changes from steep, bold precipices to low, rounded hills, around whose sloping bases our iron path is bent. Our best view of the Palisades is through a gap in the rock, and across the cañon, where they are to be seen in all their vast proportions.

Our old friend, the Humboldt, keeps along with us, on our right hand now, and

increases in size as it flows onward. Carlin is passed, and before long we stop to dine at Elko; thence we travel on in a happier mood, until night overtakes us, and the sight-gazing is stopped for that day. We turn into our bunk to dream of rushing cataracts, and wild sprites trying to make us leap yawning chasms of endless depth, while the proper accompaniment of deep thunder is supplied by our snoring neighbor in the next section.

Breeding Gold Fish.

A correspondent of the *Scottish Farmer* says:—A friend of mine some years ago constructed a tank about sixteen feet long,

and between four and five feet broad, by three feet deep, which he stocked with fish, but they did not breed. I suggested to him that gold fish were very fond of eating their own young, and that if he wanted to breed fish he must have the means of separating the old from the young. I also advised him to stretch across the tank a partition of wire-work, with a mesh small enough to prevent the large fish from pushing through, at the same time giving the young fry an opportunity of getting into a secure place. This answered the purpose perfectly, and they bred in numbers.

Gold fish should be kept in water of an even temperature—neither too warm nor too cold. A very small quantity of the white of an egg, broken up into minute particles, is sufficient daily food for some half-dozen fish. To this a very small quantity of pounded vermicelli may be added.

TEA CULTURE AT THE SOUTH.—If Californians do not hurry up matters in regard to tea culture, the Atlantic States will get ahead of them. The Commissioner of Agriculture, at Washington reports that tea culture is fast becoming a feature of importance in the Southern and Southwestern States, and that in a few years enough tea will be grown in those sections to meet the home consumption. Over forty thousand tea plants have been distributed by the department, nearly all of which flourished, and now the seed from plants raised in South California are being sent out to supply the demand. Experiments have shown very conclusively that this country can make itself quite independent of China in this important article of consumption.

OUR LAUREL WOOD.— The San José Mercury

says that there is reason to believe that our beautiful laurel wood will soon disappear from this country. Its superiority for fine cabinet work, over almost every other known ornamental wood, is rapidly coming to be appreciated throughout the world. That paper is informed that English dealers are quickly buying up large quantities of this wood for shipment. If such is the fact, some effort should be made to prevent the skinning of the country of this valuable timber. At least, in our forest tree planting, care should be taken that the laurel tree is not forgotten; so that its waste may be made good by cultivation. A laurel wood forest, thirty or fifty years hence, would be a princely fortune to the owner.

POPULAR LECTURES.

War Correspondents.

[Prof. SWINTON before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

LEC. I., June 17.—As a relaxation from the heavier topics of Mathematics and Greek, Prof. Swinton, formerly editor and war correspondent of the *N. Y. Times*, also author of "Decisive Battles," and "Campaigns of the Army of the Potomac," treated the students of the Mechanic Arts College to a series of interesting pictures from which the following have been selected:

He said, I believe our war is the first that can be said to have been reported. True, when the Crimean struggle was going on—that contest that used to look so large to us, but which in contrast with our own assumes rather the character of a tempest in a teapot—the *London Times* did send Mr. Russell, afterwards of Bull Run notoriety, to chronicle the resounding exploits of our British friends on the shores of the Black Sea; and the *London Times* was so astounded at its own enterprise, that it has not got over cackling about it yet. [Laughter.]

The war correspondents, of course, were just like the rest of mankind—some good, and some bad, and some indifferent. As a rule, they were

All Rather Green at First,

And used to swallow the stories of the "reliable contraband" and the intelligent deserter with an avidity which much experience afterwards dashes with a very considerable epice of skepticism.

But let us do justice to our friends, the correspondents, for they deserve it—a quick-eyed, nimble-fingered, indefatigable sort of fellows, who would dash off a battle-scene on the pomells of their saddles, ride twenty miles to put it *en route* to their paper, and be back before morning to gather the list of killed and wounded.

As to Their Reliability.

To be sure, they had their little weaknesses. It sometimes happened that the particular Brigadier General who had the honor of supplying them with their rations and their whisky, assumed in their reports martial proportions compared with which the great god of war would appear at somewhat of a disadvantage. But I need not say that there were wanting men among the corps of war correspondents impervious to the seduction even of rations and rye; men really worthy their high function; men who brought intelligent appreciation and literary skill and love of truth to their work; and there were, necessarily under the circumstances, in the best and truest they could write, many errors and misconceptions, half-judgments and false judgments, yet there was also that which, without these contemporary photographs the world and literature could never have possessed—I mean the life and spirit and movement of actions and events; nor is it to be doubted that when those records and reports shall have passed through the crucible of criticism, there will remain a large residuum which the historic muse will gladly garner in her golden urn.

The conventional style and white plumed generale of popular war historians like Headley and Abbott were alluded to, and the speaker continued.

The Stags Effect Removed.

Now that sort of a thing is amazingly fine reading, and you have no idea what amazingly easy writing it is; I believe it is quite captivating to young ladies, and to youths at the age when they are contemplating running off and becoming pirates in the Spanish main. But wouldn't it be uncommon good fun to have one of those imaginative historical fellows present at a real battle and to witness his chop-fallen wonderment at the plain prose and dreadful realism of the thing? Now, if in place of the heroic, redoubtable and Godlike Pumpernickel, it were Meade or Grant or Sherman or Thomas, who were present, and if instead of some battle in cloud-land, it were Shiloh or Chancellorsville, Gettysburg or the Wilderness, it is quite certain

First—That my historic gentleman would not see the commander with the "white plume"—most likely with the stump of a cigar (and if the historian wishes a really characteristic, though I admit not quite so picturesque, bit of color in his descriptions, I advise him to substitute this for the ether); for while I have seen many a great captain doing fine things in the storm and stress of battle, with a stump of a cigar in his mouth, it was never once my

good fortune to behold one with a white plume. [Merriment.]

The Commander in the Rear.

Secondly—That he would not behold the commander in the rear—more likely from three to five miles in the rear—sitting on some stump, or in a house, if such were handy, unable in all probability to see a single man in line of battle and dependent for his knowledge of the mixed and broken fight on occasional messages from the subordinate officers, or perhaps on the field telegraph run to his headquarters. I prick this illusion with extreme regret—a plain gentleman at the end of a telegraph wire is a spectacle so disgustingly unimposing, compared with the image of Saladin or a Henry of Navarre!

Thirdly—That he would hear no grand speeches about "God defending the right," etc.; but only plain, blunt phrases, or, if things become hot and feeling mounted into the upper registers, some sharp, curt oath or exclamation. "Our army swore terribly in Flanders."

Fourthly—That he would not see the chieftain raising his sword to heaven; but, if he had a sword (which would be exceedingly dubious), he would in all probability be using it to whack the shoulders of some patriot who had straggled from the ranks, to chew a succulent and seductive turnip in a neighboring field. [Great laughter.]

Fifthly—That he would not see any "scrried columns"—whatever they may be; but one or two skirmish lines or open lines of battle, and as they would probably be moving to attack a force which would most likely be ensconced behind rude earthen parapets, thrown up an hour before, by aid of tin plates or other convenient implements, the chances are, that instead of showing off their gleaming bayonets, they would be using their rifles with busiest endeavor to clear their front.

Bayonet Charges a Rarity.

Sixthly—Apropos of bayonets. I don't say that there were not in the war some real bayonet charges; but they were exceedingly rare, and my historical gentleman would be in great luck if he chanced to see one; he should, therefore, be careful not to bring in a bayonet charge, as a *piece de resistance*, in all his battle scenes. I believe I am not wrong in saying that by far the greater number of bayonet hurts during the war were made by careless fellows who, on the march, would chance to bring the peaked thing in contact with some comrade in front, whom they would thus wound in that place which is popularly supposed to be honor's peculiar seat.

No Spectacles.

Seventhly—There was very little "spectacle" in the battles; for the ground where they were generally fought was so broken and masked by woods that but little of war's array was visible.

No Grape Shot.

Eighthly—He would not be able to see a grape shot, and that for the simple but conclusive enough reason that on neither side, in no battle, from Bull Run to Appomattox, was there even a single ounce of grape shot used. This is unfortunate, for "give 'em a little more grape, Captain Buzzard" does not come in so neatly in a bit of description.

No Theatricals.

Ninthly—That he would not see soldiers, whether chieftain or subaltern, strutting in theatrical attitudes or venting themselves in grandiose speeches in the "Ercles' vein" and if they had heard my friend prating about their being "eager for the fray"—which, by the way, is a favorite phrase of your imaginative historian—they would have incontinently laughed at him.

No Strategic Combinations.

*Tenthly—He would notice a curious inversion of what he had supposed was the order or conduct of a battle. For he would soon begin with wonderment to perceive that instead of being an affair of profound plan and grand strategic combination, it was really a

Fight by Piecemeal.

In which each corps and division and brigade was going in, "on its own hook," and the result of which was far more dependent on the special work of obscure subordinates than on the rot which the historians prate of under the name of "echelon formations," "oblique orders of battle," and the rest of the jargon these gentry use without knowing the meaning of.

The remainder of Prof. Swinton's discourse was devoted to anecdotes of the war, the circumstances of which had come under the personal observation of the speaker, a running review of the various campaigns of the Army of the Potomac, from the battle of Antietam to the close of the war.

His next lecture will be on Saturday evening, on "English Literature."

GOOD HEALTH.

Diet.

EDITORS PRESS:—"Weave the tissue of the organisms out of material that will not tear," is a sentence that occurs in my last communication, and as it may appear not to sufficiently explain the way to avoid death by hemorrhage or ulceration of the lungs, something further upon the subject may be admissible.

To be plain, the diet of the majority of Americans, and of some others, is largely composed of substances from which too much of the fibrous constituents have been extracted; or, in other words, they live too much upon fine flour and fatty or oily substances. Then, with reference to the use of pork, there must have been some good reason for the Israelitish exclusion of the swine as food. Modern science supports the position also. It requires five hours to digest such food, so that those who take three meals per day, each of which consists in part of the "unclean thing" in some shape, either as shortening or otherwise, require fifteen hours out of the twenty-four for constant exercise of the digestive organs. Now laboring communities are convulsed over even a ten hours' labor system; and why should it be expected that Nature will not at times rebel against an overtax of work? So again with the heart and lungs, when fatty, oily or carbonaceous articles are in excess of the natural requirements, the lungs and heart are compelled to do an excess of work.

It would appear that very little reflection is required to convince the most unreasonable that periods of comparative rest from labor should be allowed to all the functions; but when we live in such a manner that some of them get no rest, is it to be wondered at that the machine soon wears out? Life is sweet to most of us; and that theory which would engraft the "short life and merry" principle into every thing is obnoxious.

Many years since I adopted a belief that the principle of justice, both moral and physical, was a principle like the water of the ocean, or like that other great ocean of unseen force that is always seeking a level or an equilibrium—electricity; and however much we sin against its laws, they are none the less arbitrary. We may crowd the pendulum of justice or compensation as far to one side as we will, but it will eventually swing back, and sometimes, if not often, sweep in its swing all of man's puny piles that obstruct it. Millions of human lives have been thus sacrificed.

Another reason for the disuse of pork as an article of diet, which is not altogether fanciful, may be stated thus:—*Scrofula* is the Latin for a sow; and that the disease known under the term of "scrofula," originates in the use of the flesh and fat of swine, in a great measure, is undoubted. The weakest organ must receive the disease when the general taint tends to a fatal malady; as tight-lacing in women, and smoking in men, has for many years tended to lessen the capacity of the lungs, they are the organ which suffers most. These plain hints can do no one any harm, and, if they are heeded, may save many from that dread disorder known as consumption.

F. M. SHAW.

San Diego, Feb. 12th, 1871.

Effect of Stimulants on the System.

The effects of alcohol on the healthy human body have recently been carefully observed by Drs. Parkes and Wollowicz, of the British army. One or two fluid ounces of the stimulant, per day, increased the appetite; while four or more ounces sensibly diminished it; the effect was more marked with brandy than with rectified spirits. Digestion was not, however, impeded or the temperature lowered; but though there were strong feelings of warmth in the stomach, face, etc., it is not clear that the temperature was increased. No direct effect upon the nervous system was shown by the elimination of phosphoric acid, caused by the action of the brain; but the physical state of the body changed with the size of the dose; narcotism being strongly developed when the first very small amounts were exceeded.

The effect upon the heart was extraordinary. The experiments extended over a period of twenty-six days; and during eight of them, when water alone was drunk, the heart-beats averaged per day

106,000; with alcohol, in the six following, they were 127,000; and with brandy they subsequently reached 131,000. The daily work of the heart is about one hundred and twenty-two tons, lifted one foot (or 122 foot-tons); its extra work was in the alcoholic period 15.8 foot-tons per day, and in the brandy period 24 foot-tons.

In closing, the observers give it as their opinion that the loss of appetite, the greater rapidity in the heart-beats, and the narcotism are "all owing to nervous implications," and add, "we were hardly prepared for the ease with which the appetite may be destroyed and the heart unduly excited."

Dyspepsia and its Remedies.

Dr. A. O'Leary lectured recently at Cooper Institute, New York, on "Dyspepsia." Indications of disturbance of the stomach are, he said, caused by the fermentation of food. No one should eat cabbage hoiled with meat, or onions with steaks, as they create biliousness. Cabbage is one of the best articles of food when it is cooked properly. It should be boiled in pure water. As a cure for dyspepsia he recommended a teaspoonful of carbonate of soda, which neutralizes the acid in the stomach. The causes of dyspepsia are the use of butter, grease, gravy, and eating too hastily. Dyspepsia does not come from large eating. Those afflicted with it should take a short sleep after dinner. The liver has much to do with dyspepsia. Whenever the white of the eye shows a yellow tinge, it proceeds from the liver; tenderness in the pit of the stomach is an indication of a diseased liver. A slight pain under the right ribs and back to the shoulder blade, also proceeds from the liver. Those that are prone to this disease should not sleep too much, or enjoy too much heat—too much heat tends to enlarge the liver. Fruit and vegetable diet is the best that can be adopted; but persons of a weak constitution should add to it meat once a day, but not oftener, and bread if properly made. Persons afflicted with dyspepsia should not use calomel. The lecturer recommended Turkish baths to be taken, as they relieve the liver.

Labor Conducive to Long Life.

In view of the short duration of life entailed by some occupations, it must be regarded as a consoling, yea, a sublime fact, that labor in general does not tend to shorten life; but, on the contrary, by strengthening health, lengthens life; while on the other hand, idleness and luxury are productive of the same results as the most unhealthy occupations. Dr. Guy, an Englishman, in calculating the average duration of life in the wealthy classes, arrived at the very surprising result with regard to adults, that the higher the position in the social scale, the more unlimited their means, the less the probability of a long life.

We have so long been accustomed to consider the possession of riches as the best guarantee for physical welfare, that many will be surprised to hear that "the probability of the duration of life lessens, with regard to adults in each class of the population, in the same degree as the beneficial impulse for occupation is lacking. If a person who for a long time has lived an active life, retires from business, it may be taken for granted, with a probability of ten to one, that he has seized the most effective means to shorten his life." We may smile at the soap maker who, after having formerly retired from business, went nevertheless, on each day of soap-boiling, to his workshop; but it must also be acknowledged that his instinct did not mislead him. Of all conditions of life, idleness is hardest for nature to combat; and this is especially true of persons who have accustomed themselves to a busy life.

NAIL IN THE FOOT.—We give the following for what it is worth:—"To relieve from the terrible effect of running a nail in the foot of man or horse, take peach leaves, bruise them, apply to the wound, and confine with a bandage. They cure as if by magic. Renew the application twice a day, if necessary; but one application usually does the work. I have cured both man and horse, in a few hours, when they were apparently on the point of having lockjaw."—*Ex.*

THE LAWS OF HEALTH are simply the laws of Nature. This is the principle on which the intelligent management of the body rests. Our powers being Nature's powers, are subjected to the same conditions which pervade the rest of the world.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,
JNO. L. EWER, JNO. L. BROWN.

Office, No. 414 Clay St., below Sansome.

Subscriptions payable in advance—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

NEW YORK OFFICE: Room 25, Park Row. W. B.
Partridge, Editorial and Business Correspondent.

San Francisco:

Saturday Morning, June 24, 1871.

Gold and Legal Tender Rates.

San Francisco, Wednesday, June 14, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
112½.

Table of Contents.

Niagara Direct-Acting Steam Pump, Ill.; Academy of Sciences.....	385
MECHANICAL PROGRESS—Atmospheric Gas Engine; Missouri Iron Works; Hotel Telegraph; Bituminous Coal; Screw vs. Paddle; Two-Keyed Telegraph Instrument; Cartridges.....	386
SCIENTIFIC PROGRESS—Physical Constitution of the Sun; Spectroscope; Life; The Opal under the Microscope; Spongy Iron a Deodorizer.....	386
Lower California and the San Diego Mines; Smelting at White Pine; Rull Bun District.....	387
MINING SUMMARY—Mining Shareholders' Directory; Market Rates.....	388, 389
List of Patents; Sacramento Seminary; Editorial Notes Eastward, Ill.; Breeding Gold Fish; Tea Culture; Laurel Wood.....	390
War Correspondents; Diet; Stimulants; Dyspepsia; Labor Conducive to Life.....	391
Notices to Correspondents; Something New in Ore Washing; Ageing Wines; Railroads Universal; New Manufacture of Planing Machinery.....	392
The Saw Tooth Controversy; Visit of the Commissioner of Agriculture.....	393
Importance of Scientific Knowledge to Housekeepers; To Collect the Odor of Flowers; Boiled Wheat; Domestic Receipts; Mechanical Hints.....	394

Notices to Correspondents.

Velocity of Steam.

In answer to several inquiries concerning the velocity of steam under various pressures, we give the following table, taken from Bourrie's "Handbook of the Steam Engine."

Velocity of Flow of Steam into the Atmosphere			
Press. above Atmosphere.	Velocity per second.	Press. above Atmosphere.	Velocity per second.
Lbs.	Feet.	Lbs.	Feet.
1	482	50	1791
2	663	60	1838
3	791	70	1877
4	890	80	1919
5	973	90	1956
10	1241	100	1987
20	1504	110	1972
30	1643	120	1990
40	1729	130	2004

This table is computed by taking the difference of the pressures of the steam and the atmosphere, (that of the latter being about 15 lbs. to the square inch) for the effective pressure, which effective pressure is expressed in pounds per square inch, divided by the weight of a cubic foot of the denser fluid in pounds, and the square root of the quotient is multiplied by 96. The more dense the steam is, the larger becomes the mass of matter which a given pressure has to move. With steam of 16 lbs. pressure, flowing into steam or air of 15 lbs. pressure, the moving pressure is 1 lb., and the velocity of efflux is 482 feet per second. The denser the fluids are, however, the less will be the velocity of efflux which a given difference of pressure will create. With steam of 101 lbs. pressure, flowing into steam or air of 100 lbs. pressure, the moving pressure is the same, but the velocity of efflux will be only 207 feet per second.

J. A. S., Central Cal.—Probably a small Hess (grinder) pan would answer best, though as others would do if you have special pulverizing machinery.

PUT THROUGH THE ISTHMS CANAL.—There has been so much surveying and hesitancy and talk of impossibilities in this connection, that the world is getting tired of it. Let the government send for a few California ditch men, to show the engineers how it is practicable and a simple matter to feed the canal with water from sources surely not further removed than those tapped by our enterprising miners, and it will be found no great problem to out a canal for the paltry fifty miles, where such national ends are at stake.

Something New in Ore-Washing.

"Concentration of Sulphurets" has developed such innumerable varieties of machines that anything quite original in that line was long since deemed an impossibility. But here is a machine invented by Mr. C. Coleman, of Nevada City, that looks like a novelty, and is not without excellent points. It is on exhibition at No. 531 California street, in a two-foot model:

A cylinder like a cannon, 20 ft. long and 8 ft. in diameter, its inside in the form of a screw; that is lined throughout with a spiral thread, like that of the female screw.

The pulp from a 20-stamp mill being turned into the cylinder at one end, which is quarter closed by a diaphragm; the other end of the cylinder is raised a little, and the cylinder is set revolving. At the same time some fresh water is introduced and distributed evenly inside from the opposite end. The operation is that of clean water running upon the dirty water, and together out of the cylinder over the edge of the diaphragm at the lower end, at the same time that the screw is moving the heaviest particles along up grade, and towards the elevated end, against the flow of the water, which overflows from rifle to rifle—such being the secondary and rather important role of the screw-threads.

Take any single heavy particle introduced, as a grain of pyrites or a nail; it is compelled to travel the whole length of the screw without any possibility of escape, except by being lifted, in consequence of its lightness, over the side of its own particular sluice into the next one following; the clean water playing constantly against it, down each sluice; the pipe jetting it according to judgment against the inside of the cylinder on that side which is rising. There being four threads or grooves to the foot, (the sluice three inches wide) and a circumference of 24 feet, the total length of the sluice necessary to be traveled by the particle would be 24x4x20, or 1720 feet, which is a third of a mile in a straight sluice.

The machine is very simple and cheap, being made of wood, the screw parts included. For the latter nothing more is requisite than the nailing on of slats in spiral continuation inside of the cylinder.

Less water seems to be required in this than in any machine with which we are acquainted. As to its practical results, we know nothing further than the reported successful operation of a machine six feet long and three feet in diameter at one of the quartz mills near Nevada City. Its continuousness of operation, and self discharging, are of course decided advantages. The lumber requisite for a sluice of 1720 feet would cost, it is evident, only about a third as much, constructed in this manner, as it would in a straight line, since the side of the sluice at any one point forms also the side of the next screw or groove compartment; so saving the lumber of one of the sides. On the other hand the machine requires motive power.

A 20-foot machine, 8 feet in diameter, costs \$300, and is estimated to separate effectually all the pulp that a 20-stamp mill can deliver.

MR. WILLIAM H. MURRAY, special correspondent and agent for the San Francisco SCIENTIFIC PRESS and PACIFIC RURAL PRESS, both issued from the one office, in that city, was among the arrivals yesterday. The SCIENTIFIC PRESS has acquired the reputation of being the best practical mining journal in the United States, and the only illustrated mechanical and industrial newspaper west of the Rocky mountains. The PACIFIC RURAL PRESS is a wide-awake publication, devoted to farming, and all industrial interests. Mr. Murray, who comes to us favorably endorsed, will canvass different sections of our territory for subscriptions to these publications, furnishing the publishers with occasional letters descriptive of our agricultural, pastoral, and mining resources.—*Rocky Mountain News*, Denver, Col., June 11, 1871.

Ageing Wine—An Important Invention.

One of the greatest drawbacks in the manufacture of wine is the length of time required to give "age" to the product. One and two years is the time usually considered necessary for "ageing" to an extent sufficient to determine the true character of the wine, so that it can be advantageously placed in the market. And any additional delay beyond that time is considered equivalent to adding a good rate of interest to the value of the product.

Time is money. Now if we can introduce a process which can be applied to the wine, say within two or three months from the time the juice is expressed, which will immediately give to it the "age" of two, three or four years, that process is worth the interest on the original cost of the wine for the time so saved, added to the cost of storage, insurance, etc. It moreover releases the amount of capital otherwise stored up in cellars and vaults, and allows it to be put to active use, whereby it may earn more than the mere interest of the money, to say nothing of the benefit it will be to the community in giving additional employment to labor.

Many plans have been devised to reach this end, and generally with more or less success. It has been for many years the custom of wealthy ship owners and others to place a few casks of wine on board of a ship, and allow it to take long voyages out and back. It was found that wine so treated "aged" very rapidly; but the process is quite too expensive to be adopted to any great extent.

Acting upon this hint, however, Mr. R. d'Heuruse, then of this city, took out a patent for what he called the "Air Treatment," by which air was forced up through the wine from below, and the ageing thus hastened.

The "Heating Process" was subsequently added to the air treatment, by which it is contended the minute vegetable organisms upon which fermentation depends, are killed. The wine, after being fermented either in the natural way or by the forced air treatment, is raised to a temperature of 120° or 140° F., and kept in that condition for half an hour, after which, it is claimed, there is no danger of the wine entering into the acetic fermentation, and becoming sour. This process, however, seems only to delay the acetic fermentation, for a greater or less length of time, the duration of which seems not to be well ascertained. Still, for a time, the process seems to accomplish the end desired. If we had space, or if this was the proper time to enter into such a discussion, we might give what we think may be some very good reasons why the heating process does not make a stable wine.

But our present purpose is to call attention to a new invention, or rather discovery, which we think accomplishes the object more fully, more promptly and more cheaply than anything yet devised—in fact one which we think performs the work of ageing perfectly; as much so as is done when the wine is simply allowed to rest, and acquire its "age" by the actual lapse of time.

There is an interesting fact connected with the history of this invention which we may give just here. Like many others, it chanced to have been hit upon by two parties at the same time—one in this city and the other in New York. The parties in this city were Messrs. William Neil and J. L. Constable, who applied through the MINING AND SCIENTIFIC AGENCY for their patent. When the papers were made out and sent to Washington, it was found that a party in New York had just before patented precisely the same thing. Negotiations were immediately entered upon by the parties here for securing the use of the patent, and Mr. Constable went to New York some few weeks since to consummate the arrangement. In due time he telegraphed that the business had been completed.

This process is also equally applicable to ageing whisky and brandy, and we understand a large apparatus is now about ready to go into operation in this city, from which we shall probably be able to report results in the course of a few days.

In our next we will endeavor to describe this new process, explain the philosophy of the same, and offer a few remarks upon the advantages which must accrue from its introduction here.

Railroads Universal.

It is useless to attempt to summarise all that is going on in the railroad way. Like common roads, and like paths and trails that gradually become more and finally much frequented by the multiplication and influx of people, like frost net-work upon the windows on a wintry day, railroads are extending and interlacing everywhere, and in every country on the globe, including Shem's and Ham's, though not yet quite in the heart of the latter. We could stop to note Brigham's Southern Railroad and the Overland California Pacific; but on top of earnest doings in progress by the Northern Pacific and by the Texas Pacific, which companies all "mean business," we are told that Harry Meiggs is alive and active in the Peruvian Andes somewhere; that the Vancouver and Canadian Dominion surveyors, with a geological corps attached, are beginning their work eastward from the Pacific end of their pet route; that Mr. Fred A. Lane, one of the Directors of the Erie Railroad, has resigned and gone to Brazil, with a corps of engineers, to survey and direct a Brazilian transcontinental railroad, to be constructed by a party of English capitalists; and we are forced to shut down on the equally important (to themselves) Australian works, now reported to us firstly by steamer direct; and to ignore our brethren's great schemes in Mexico and Russia. Cheap excursion tickets and Great Easterns are in order.

NEW MANUFACTURE OF PLANING MACHINERY.

—We are pleased to note any new enterprise, especially in manufacturing, which is one of the great needs of California and the other Pacific States. The manufacture of wood-working, labor-saving machinery is a large industry in the Eastern States. Hitherto California has been a good market for considerable of this class of machinery, although but a drop in the bucket compared with the large field for such productions in the others—especially in the great Western States. A young house, comparatively, (Berry & Place) whose name has figured prominently in our advertising columns the past three years, and which has made the importation and sale of improved wood-working machinery a specialty, is now about to engage in its manufacture. Of course, the field is limited, and they will therefore confine the business to the manufacture of only such machines as can be built here at such prices as will best compete with the Eastern-made—such as Woodworth planers, sawhewers, shapers, etc. They have gotten up some fine patterns, and are now completing arrangements for their manufacture.

These gentlemen evidently understand their business. They came from the East some three years ago—Mr. Place being a thorough business man and Mr. Berry a practical mechanic. From nothing they have built up a business which aggregates several hundred thousand dollars yearly. They have "reached out" for trade, and understanding the value of advertising liberally, they have the satisfaction of a growing business from the start, even in the dull seasons. Such pluck and energy are deserving of success, and we hope that in adding manufacturing to their business, they may be equally as successful as they have been in the importation and sale of machinery.

BISMUTH IN NEVADA.—Mr. Melville Atwood has presented us with a specimen of bismuth from the vicinity of White Pine, Nevada. This is a new and important discovery, and we are not yet given the exact locality. The carbonate is the predominant mineral with some native bismuth. The metal is worth about 16 shillings (\$4) per pound in England.

The Saw Tooth Controversy.

On Saturday last, in the U. S. Circuit Court in this city, Hon. Lorenzo Sawyer presiding, three cases in equity brought by N. W. Spaulding against Wm. Tucker and S. O. Putnam, agents of the American Saw Company of New York, for *selling*, and against Nathaniel Pago and others and J. R. Duff and others, for *using* saws manufactured by the American Saw Company, were decided in the plaintiff's (Spaulding's) favor, and decrees were ordered to be entered in each case *perpetually enjoining* the defendants from *using* or *dealing* in inserted tooth saws having sockets rounded or formed on circular lines. Also for an accounting to the plaintiff of what profits the defendants had made or saved by the unlawful using or selling of his invention.

The defendants in their answers denied the validity of Spaulding's patent, and set forth that Spaulding's alleged invention was old—that it had been in public use at various times and places prior to his alleged invention of it, and gave the names of a large number of witnesses residing at the East by whom they alleged this fact would be proven. The testimony of these witnesses, and that of others in rebuttal, was taken in New York about a year ago, M. A. Wheaton and Alfred Rix, attorneys of this city, attending the examination on behalf of the plaintiff, and George Gifford, of New York, one of the ablest patent lawyers of the country, on behalf of the defendants. The depositions of nearly one hundred witnesses from Maine, New Hampshire, Vermont, Massachusetts, Canada, New York, Virginia, Pennsylvania, Michigan and other States, were taken. The trial of the case, in the presentation of the evidence and oral argument, occupied more than a month, to say nothing of the preparation and consideration of voluminous briefs, and the examination by the court of numerous precedents and authorities submitted.

These facts show the importance which the parties attach to the contest and the vigor and persistency with which they have carried it on.

The American Saw Company, it is supposed, has enlisted in its aid many of the other saw companies and firms in the East, which are alleged to be infringing the Spaulding patent. On the other hand, although Mr. Spaulding has shown himself to be an adversary not to be despised and amply able to protect his rights against the combined efforts of all infringers, and to meet the enemy in full force and at all points, yet, we are informed, there has been for some time past a company organized, awaiting the result of these suits, composed of some of our best business men of means and Eastern capitalists, for the purpose of starting an extensive saw manufacturing establishment in the East to work under the Spaulding patent and under his supervision.

These and other well known facts give the case a sort of public interest and justify more than a passing notice.

As an indication of Mr. Spaulding's purposes, principles and plan of action, we quote the following from his brief filed in the cases just decided:

"Taking warning as we do of the past history of valuable patents, we see before us a long, hotly contested litigation. We expect to meet in hostile array against us, what other patentees have had to contend with, the highest order of legal talent, employed experts, honest witnesses, who, with interested assistance of pirates and pirates' agents, have recalled from oblivion's grave a faint glimmer of long forgotten saw sockets which, from circular diagrams presented to the eye, and rounded corners incessantly described to the ear, have assumed the form of Spaulding's invention as they have slowly emerged from darkness, laid aside the ceremonies of their long hibernation, and reinstated themselves in a new form in men's memory; other witnesses also who have seen saw sockets in

years gone by, forgotten their forms, but believe and swear they are round because so many persons tell them so, not supposing they are telling anything false, except only in the one thing of saying they remember, when in fact they do not; other witnesses, again, who swear from motives that are all bad. These, and all else that unlimited capital and the ability of all kinds which it can command, we expect to meet. Whenever we believe our patent invalid we will cease the fight. But so long as we believe, as we now do, that the patent is a valid and good one, we propose to arm ourselves with truth alone, and continue the contest to the final end. Believing, as we do, that falsehood and its kindred allies can never form plans and combinations which can successfully contend against truth and energy, we prefer to cast aside, in every instance, every apparent advantage which falsehood may offer, firmly believing that however profitable such apparent advantages may seem to be at the time, yet that there is a principle of right working deeper and beyond the depth and range of human foresight that ever will bring a disastrous reaction to all advantages based upon a false foundation, temporary as they must always be."

The defendants in these suits produced witnesses who testified to some ten different instances of alleged prior use.

All of them, however, were placed from twenty to over thirty years ago; that is, there was no evidence to show, and it was not claimed, that the invention had been in use for more than ten years next prior to Spaulding's production of it in 1860.

The proof in support of all these instances depended upon a memory of from twenty to thirty years alone. No other corroborating circumstance, fact, or thing, was produced.

In several of these instances the testimony went to show that a large number of saws had been made, sold and used on Spaulding's plan, so that, if the defendants' testimony was correct, nearly a hundred saws like Spaulding's were made and used between 1830 and 1844, and yet not one single saw was produced on the trial. But, on the other hand, various drawings, patterns, teeth, and whole saws, were produced by the plaintiff, made and owned by the defendants' witnesses during the period in question, which were made on the old style.

They also admitted that although the new style was more easily made and better when made than the old, yet after trying the new and coming to this conclusion, they left off making the new or round sockets and went on with the old or square sockets. The great superiority of the Spaulding method was fully shown by all the testimony on the subject. Counsel for the defendants admitted that it was obviously the best mode of inserting teeth.

It was also shown and admitted that immediately on Spaulding's bringing out his saw, it became a success and went rapidly into general use, partly under his patent and partly in defiance of it. Some mill-owners testified that they were obliged to adopt the Spaulding saw in order to manufacture lumber as cheaply as the other mill-owners already using it.

These facts, together with many others of a like character, and many circumstances not necessary to mention here, along with the testimony of plaintiff's witnesses superior in numbers and of unquestioned veracity and intelligence, who testified in direct contradiction to those of the defendants, the Court found for the plaintiff, and the decision seems to be universally commended.

On almost every leading patent case, involving as this did the question of priority of invention, the public history of the art affords the public an almost certain means of arriving at the proper conclusion, and it seldom happens that its judgments, though half instinctive, are wrong.

In all this saw litigation Spaulding has been successful.

He commenced his first action, which was a suit at law, about two years and a half ago, against William Tucker, the agent of

the American Saw Company. The American Saw Company defended the suit, employed the best of legal talent here and in New York, and caused to be searched the models and records of the Patent Office and other sources of mechanical knowledge, in the attempt to find something of older date than Spaulding's patent, which would prove that his device (that of rounding the sockets to prevent the saw-plate from cracking) had been known and used before. They found a rotary mortising machine, which they put in evidence, and in addition to that tried to show that the third saw, which was made by Spaulding himself for a Mr. Soruberger, was Soruberger's invention and not Spaulding's.

The jury on that trial, Judge Deady presiding, decided for Spaulding, and judgment was entered for him for two thousand dollars damages with costs of suit added.

Within a few days after the termination of that action the cases just decided, which were chancery suits, were commenced and preliminary injunctions were granted by Judge Hoffman, then presiding in the Circuit Courts, enjoining the defendants in each of the suits from using or dealing in inserted tooth saws having rounded sockets. On account of these injunctions coming so quickly upon him after the judgment against him for damages in the former suit the defendant, Tucker, had only time to sell ten saws, and the decree against him could only be for the profit upon the sale of those ten saws, which, as compared with the value of the patent, was inconsiderable. The defendants in the other two suits infringed the patent by using the saws in cutting lumber in their sawmills, and not by dealing in the saws as merchants. The amount of their damages was not definitely fixed, but the Court holds that they must account to the plaintiff for what they have saved in their business by the unlawful use of his invention, and also decides that the evidence shows such saving to be not less than one dollar per thousand feet for all the lumber cut with saws which infringed the plaintiff's patent. The prosecution in all of these cases was against the saws known as the Emerson or American Saw Company's saws.

The defendants in these cases made herculean efforts to find something which might be decided to be an anticipation of Spaulding's patent. Several witnesses testified that money was offered to them to testify for defendants and to refuse to tell the truth for the plaintiff. Large rewards were also offered for the production of an old saw with rounded sockets.

We make the following other quotation from the plaintiff's brief, as it coincides with our views of the history of inventions and inventors:

"It is very unfortunate for inventors that every valuable invention is seized upon by pirates who appropriate to their own use the inventor's discovery. Instead of being willing to compensate him for making the discovery, of which the infringers avail themselves, they too often marshal themselves in combined array against the poor discoverer, seize his property, and hunt him with lawyers, experts, witnesses with easy consciences and elastic memories, and scientific egotists, as though he was an enemy of mankind instead of its benefactor. The contest waged by pirates is based upon no higher motives than the miser's avarice and the thief's dishonesty. From these passions, excited by the sight of gains acquired by infringement and the efforts to retain them, are born their odious but natural offspring—hatred and malice towards their victim—and this family of sin, as history shows, have often persecuted and dogged into his very grave the poor inventor, who with no faults but doing only right, and actuated by good motives only, had by his invention added to the world's advancement and mankind's good."

Whitney, the inventor of the cotton-gin, was sworn entirely out of it, but the world has pronounced the evidence by which it was done to be perjury. The same defence was set up against Morse's telegraph, Woodworth's planing machine, Goodyear's vulcanized rubber, and the whole

host of inventions which have advanced the world to its present position. In every instance men were found who swore they had seen the same thing before, and experts have always helped to establish a false appearance of identity of the old with the new.

Mr. Justice Grier, for so many years a Justice of the Supreme Court of the United States, and acknowledged generally to have been the greatest and ablest jurist that ever presided at the trial of patent cases, or gave construction to patent law, towards the end of a long life, much of which had been spent in trying patent cases, in the case of *Goodyear vs. Day*, uttered the following language as showing his convictions of the general injustice done to inventors after so long an experience.

"It is when speculation has been reduced to practice, when experiment has resulted in discovery, and when that discovery has been perfected by patient and continued experiments, when some new compound, art, manufacture or machine, has been thus produced, which is useful to the public, that the party making it becomes a public benefactor and entitled to a patent; and yet when genius and patient perseverance have at length succeeded, in spite of sneers and scoffs, in perfecting some valuable invention or discovery, how seldom is it followed by reward. Envy robs him of the honor, while speculators, swindlers and pirates rob him of the profits. Every unsuccessful experimenter who did or did not come very near making the discovery, now claims it. Every one who can invent an improvement or vary its form, claims a right to pirate the original discovery. We need not summon Morse or Blanchard or Woodworth to prove that this is the usual history of every great discovery or invention. The present case adds another chapter to this long and uniform history."

M. A. Wheaton and Alfred Rix, were the attorneys for plaintiff, and Messrs. McAllister and Bergin were attorneys for the defendants.

Visit from the Commissioner of Agriculture.

While at the Bureau of Agriculture in Washington, recently, we were pleased to learn that the Commissioner of that Department, Hon. Horace Capron, intends visiting California, and probably Oregon and other parts of the Pacific coast, during July or August of this season. He will be accompanied by the better half of his household, and we believe will make us quite a stay, and one which will result in much benefit to our coast, and the cause of agriculture at large. We hope soon to announce more particularly the time of his coming. In the meantime, we hope our agricultural friends will prepare to give him a hearty welcome, and all the assistance and information possible in furtherance of the objects of his visit. He will be here in just the season to attend our various State and District Agricultural Fairs, and the Grand Industrial Exhibition which will come off in this city under the auspices of the Mechanics' Institute.

RAILROAD BUILDING FORTY YEARS AGO.

Less than forty years ago the Boston Courier, then one of the leading papers in New England, contained the following editorial notice of the project then entertained of connecting Boston and Albany by a railroad:—"Alcibiades, or some other great man of antiquity, it is said, cut off his dog's tail that *quid nunc* might not be extinct from want of excitement. Some such motive, we doubt not, has moved one or two of our natural and experienced philosophers to get up the project of a railroad from Boston to Albany,—a project which every one who knows the simplest rule in arithmetic knows to be impracticable, but at an expense little less than the market value of the whole territory of Massachusetts; and which, if practicable, every person of common sense knows, would be as useless as a railroad from Boston to the moon."

DOMESTIC ECONOMY.

Importance of Scientific Knowledge to Housekeepers.

Not many years have passed since the science of housekeeping began to be talked about. Until recently, how the idea of a housekeeper—a woman needing scientific knowledge would have been scouted! Yet the labors of her life have been a series of philosophical and chemical experiments; though for want of the requisite knowledge, frequently imperfect, sometimes unsuccessful, occasionally disastrous. The violation of laws and principles of which she knew nothing, has not only caused great vexation, loss and disappointment, but endangered house and furniture; destroyed life, even. Ignorance of chemical affinities and combinations has produced unnumbered woes in the household, and will continue to do so until women receive an education suited to their varied and numerous duties.

Wives and mothers do not often knowingly murder their husbands and children; yet how many die of slow poison administered, unsuspectingly, in their food! Sometimes whole families are killed outright, shocking the whole community, and teaching them at a fearful cost a simple lesson, which should have been taught them at school in their childhood.

A family in Pennsylvania were poisoned by eating peaches dried on boards painted white. Another family experienced fatal results from partaking of pie plant put up in tin cans. Beans baked in earthen pots, the glazing of which contains lead, have produced death. Some bake beans in brass kettles, which give them a greenish tinge—too suggestive of poison, one would suppose, to admit of their being highly relished.

A number of students in New Haven were poisoned by eating corned beef hoiled in a copper kettle, the oxide of copper being found in considerable quantity among the meat. A lady was taken frightfully ill after dinner, and the physician, on investigation, found she had partaken of a dish prepared with vinegar, in which a German silver spoon had been left.

It makes one shudder to think of our grandmothers "greening" their pickles in brass or copper kettles; a method which in this enlightened age it is presumed no longer exists.

The practice of hoiling cider in brass kettles is seriously objected to by many; and it is to be desired that some better way may be devised, but as the oxide is produced only at the point of contact with the metal, if not allowed to stand in the kettle, no very deleterious effects will be produced.

Very distressing results have followed the eating of chicken pies, in which no aperture was made in the upper crust. To insure safety a piece of the crust should be removed from the center of the pie.

These are some of the more serious consequences resulting from ignorance of scientific principles. I may, in another article, speak of the minor evils attending a want of this important knowledge.—*The Household.*

How to Collect Odors of Flowers.

A fair floriculturist writes that those persons who would secure for themselves genuine odors of flowers, and at the same time pleasantly employ themselves, may do so in the following manner: Roses, and all flowers containing oils—and most highly perfumed flowers contain a quantity of oil—may be made to yield their aromatic properties by steeping the petals or flower leaves in a saucer or a flat dish of water and setting it in the sun. The petals should be entirely covered with the water, which, by the way, should be soft—rain water would be the best. A sufficient quantity should be allowed for evaporation, and the vessel should be left undisturbed a few days. At the end of this time a film will be found floating on the top. This is the essential oil of the flower, and every particle of it is impregnated with the odor peculiar to the flower. It should be taken up carefully and put in tiny vials, which should be allowed to remain open till all watery particles are evaporated. A very small portion of this will perfume glove-boxes, drawers, apparel, etc., and will last a long time. The odor of musk blossoms is one of the most lasting, as well as the most pungent of floral scents, and is more delicate than, though not so lasting, as the animal product musk.

Boiled Wheat.

It is possibly not as well understood as it should be, among housekeepers, that a healthful and nutritive food may be prepared by hoiling wheat, to be eaten with milk or molasses—the former to be preferred when attainable. It is a first-rate thing for children, while adults may use it to advantage. Some have the wheat cracked in a mill before using, which is perhaps the preferable plan, but it will answer well without this preparation. A lady correspondent of the *Ohio Farmer* says:—"The wheat should be cracked in a mill. Take one quart and put it into half a pot of warm water, and let it stand upon the stove several hours; then boil slowly, and stir it occasionally, till it becomes thick; put in a handful of salt. For children it can be used with milk. If left standing till cool, it is very nice to cut in slices and use with cream and sugar, or fry it like mush; the last mentioned I prefer for general use, but it can be prepared in various ways."

If hoiled whole the wheat should be allowed to soak in tepid water before hoiling, that the grain may have a chance to soften and swell. When properly hoiled use with milk suitably seasoned with salt and pepper, and it will be found a nourishing, healthful and palatable dish.

Purification of Lard.

Take twenty-eight pounds of perfectly fresh lard; place it in a well-glazed vessel that can be submitted to the heat of a hoiling salt-water bath, or of steam under a slight pressure. When the lard is melted, add to it one ounce of powdered alum and two ounces of table salt. Maintain the heat for some time—in fact, till a scum rises, consisting in a great measure of coagulated proteine compounds, membrano, etc., which must be skimmed off. When the liquid grease appears of a uniform nature it is allowed to cool. The lard is then washed. This is done in small quantities at a time, and is a work of much labor; which, however, is amply repaid by the result. About one pound of grease is placed on a slate slab, a little on the incline, a supply of good water being set to trickle over it. The surface of the grease is then constantly renewed by an operative working a muller over it, precisely as a color-maker grinds paint in oil. In this way the water removes any traces of alum or soap; also the last traces of nitrogenous matter. Finally, the grease, when the whole is washed in this way, is remelted, the heat being maintained sufficiently to throw off any adhering water. When cold, the operation is finished.—*Druggists' Circular.*

Dinner Time.

Dinner time should be at noon, as to the great masses of society. An unfortunate necessity may impel some business men in large cities to take dinners late in the afternoon, and some may follow the practice with apparent impunity, but the risk and responsibility are their own, and there it is left at least for the present. As a common thing persons cannot take into the stomach more food than will last six or seven hours; if more is taken, it cannot be acted upon to advantage by the stomach, nor can the person work well.

Ordinary labor exhausts the strength contained in a common meal in the time specified. Persons may habituate themselves to eat more and work; but taking everything into account, families, consisting of old and young, of strong and weak, of robust and the sickly, will find it most convenient, as an average, to eat at about six hours interval; and this, with an early breakfast, brings the dinner at noon.

The work since morning whets up the appetite for dinner; the work after dinner grinds up the food, manipulates it in such a manner as to enable the body not only to obtain from it the power to work in the afternoon, but to give something of a surplus, to answer the wants of the system during the night, in connection with a light supper. Hence, the world over, the noon dinner is the great meal of the day; it supplies the wastes of the forenoon's work, and as just said, gives the power to labor through the afternoon.

WASHING FLANNELS.—A correspondent writes to the editor of the *Household* as follows: "I notice among the hints to housekeepers that flannels should always be washed in hot water and scalded to prevent shrinking. This is exactly contrary to my method, and my flannels never shrink, but grow thinner until worn out. I always wash them in lukewarm water, rubbing on as much soap as is necessary, then rinse in cold water."

Domestic Receipts.

FARMER'S PUDDING.—Take one pint of bread crumbs, one quart of milk, half a cup of sugar, four eggs, taking only the yolks, butter the size of a walnut, one lemon, grated; bake until done, but not watery; then spread a layer of currant jelly or any preserved fruit over it. Take the whites of the eggs and sugar, in which has been stirred the juice of the lemon, heat to a stiff froth, pour it over the pudding and brown it. Serve cold with cream. It can be made without a lemon. Flavor with nutmeg.

MOCK VENISON OF CORNED BEEF.—Cut the beef in thin slices, and freshen by soaking for three or four hours in tepid water. When sufficiently fresh, lay the slices on a gridiron, and heat through quickly. Make a gravy of drawn butter; add a little pepper, and the yolk of an egg chopped fine, and pour over the meat; or butter, pepper and salt, like beefsteak. This will be found a savory dish when only salt meat can be procured, but it is better with fresh beef.

TOMATO SOUP.—Take any cold meat; hoil well with cabbage and other vegetable; pepper and salt; then add your tomatoes.

CRAB SOUP.—One dozen crabs picked, putting aside the white fat, to as much boiling water as will fill your tureen; add the meat just before dinner; throw in a little bunch of parsley, (but take it out again) pepper, salt, and a moderate-sized piece of butter, with a little flour to give consistency.

DAMASUS BISCUIT.—Beat the whites of the eggs to a froth, chop the suet and almonds separately very fine, and heat well together; mix with the yolks of the eggs, the loaf sugar finely sifted; heat well, and pour into the almond mixture; shake in the flour, and add to flavor of peach; bake in small time.

ABERNETHY BISCUIT.—Mix sugar, butter, milk, eggs and caraway seed as usual for baked rolls, cut out in any shape, bake in a moderate oven.

TO REMOVE MILDEW FROM CLOTHING.—I saw an inquiry how to remove mildew from clothing. Here is my way:—Take a handful of salt, half a cupful of soft soap, rub on the cloth exposed to the sun. It will come out with one or two bleaching.—*Ex.*

Mechanical Hints.

MOISTURE IN WOODS.—According to Dr. Larsig's experiment, woods (trees) generally contain, during the winter months, an average of 50.7 per cent. of moisture; in March and April, about 45.9 per cent; in May, June and July, about 48 per cent; while up to the end of November the quantity of moisture increases but little. Air-dried wood (lumber) contains from 20 to 25 per cent. of water, and never less than 10 per cent.—wood which, by being artificially dried, has been deprived of all moisture is thereby entirely altered as regards its cohesive length—it becomes brittle, loses its elasticity and flexibility.

HOW TO MAKE A BRICK OVEN.—Many a house-keeper, especially a farmer's wife, longs for a good old-fashioned brick oven, especially when there are several loaves of bread and a dozen pumpkin pies to bake at once.

A brick oven built in the old style, out of doors, entirely separated from the dwelling house, is more safe, so far as danger from fire is concerned, than if built by the side of the fire-place in the house. A good brick oven for baking bread, pies and cakes is worth all the ranges and cook stoves that one could store in his kitchen. In such an oven everything will be baked just right, above and below, through and through.

After the foundation has been prepared, let two courses of hard bricks be laid for the bottom of the oven. Then build the mouth and part of the sides, until it is desirable to begin to draw the sides inward, when sand or mellow earth may be placed on the foundation and the surface smoothed off and pressed down to the desired form of the oven. Now let the brick-work be built, over this form of sand. Let two courses of hard brick be laid over the form with the best mortar. After the last brick is laid, the sand may be removed.

The bricks should be soaked for several hours in water, previous to being laid, so they will not absorb the moisture of the mortar until it has set. Such an oven will cost but a few dollars. Many people can collect a sufficient number of loose bricks and pieces around their dwellings to build an oven. Besides this, through only half a mechanic, one can build such an oven about as well as a mason.—*Manufacturer and Builder.*

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Pass'ger Sunday except'd	Express Train Daily	MAY 1, 1871.	Express Train Daily	Pass'ger Sunday except'd
4:00 P.M.	8:00 A.M.	San Francisco...	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland...	5:12 P.M.	11:58 P.M.
5:50 P.M.	7:30 A.M.	San Jose...	5:30 P.M.	12:15 P.M.
7:58 P.M.	12:15 P.M.	Stockton...	1:43 P.M.	8:35 P.M.
8:35 P.M.	2:00 P.M.	Sacramento...	11:45 A.M.	9:10 A.M.
	4:10 P.M.	Mayfield...	9:10 A.M.	
	9:00 P.M.	Seaside...	4:20 A.M.	
	2:20 P.M.	Sacramento...	11:45 A.M.	
	5:25 P.M.	Colfax...	8:45 A.M.	
	1:15 A.M.	Reno...	1:00 A.M.	
	9:10 A.M.	Winnemucca...	4:05 P.M.	
	12:00 P.M.	Battle Mountain...	1:25 P.M.	
	4:40 P.M.	Elko...	8:45 A.M.	
	6:10 A.M.	Ogden...	5:15 P.M.	

SAN JOSE BRANCH.—Leave San Francisco at 9:10 a. m. daily (except Sundays), and 3 P. M. daily. Returning leave San Jose at 7:30 a. m., daily, and at 3:30 p. m., daily (except Sundays).

OAKLAND BRANCH.—Leave San Francisco, 6:50, 8:00, 9:10, 10:20 and 11:10 a. m., 12:00, 1:00, 3:00, 4:00, 5:15, 6:30, 8:30 and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).

LEAVE BROOKLYN. 5:15, 5:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.

LEAVE OAKLAND. 5:25, 6:40, 7:50, 9:00, 10:10 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

ALAMEDA BRANCH.—Leave San Francisco, 7:20, 9:00, and 11:50 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only).

LEAVE HAYWARD. 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.

LEAVE FRUIT VALE. 5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

*Trains do not run Sundays.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

PENNSYLVANIA CENTRAL R. R.

AND
Pittsburgh, Fort Wayne and Chicago R. R.

—IS—
61 Miles the shortest line
From Chicago to New York, Thru daily lines of
Pullman's Palace day and Sleeping Cars,
from Chicago

to Pittsburgh,
Harrisburg,
Philadelphia
and New York

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington city.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Alleghany Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via, Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route.

J. R. ERRINGER, Jr., Gen'l Agent, San Francisco, Cal.

Yosemite

— AND —

BIG TREES.

THROUGH TICKETS

VIA

CENTRAL PACIFIC RAILROAD,

FOR SALE AT

C. P. R. R. Office, 422 California Street.
O. & N. W. Ry. Office, 445 California Street.
C. B. & M. R. R. Office, 214 Montgomery Street.
C. R. I. & P. R. Office, 208 Montgomery Street.
K. C. St. J. & C. B. R. R. Office, 306 Montgomery Street

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURERS OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Borax Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES.

Business Cards.

A NEW PATENT.

If you want a superior set of **TEETH** on Gold, Rose-Pearl, or Pyrocollu, that will not loosen while masticating, call on **DR. BEERS**, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOSEPH GILLOTT'S
STEEL PENS.

Sold by all Dealers throughout the World.

JOS. THORNHILL,
BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 2v21-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v21-3m

Farmers and Mechanics
BANK OF SAVINGS,

No. 235 Sansome Street.
Interest paid on Deposits. Money loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 1v16-3m

W. M. BARTLING. **HENRY KIMBALL.**
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
SAN FRANCISCO.
1v12-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

CO-OPERATIVE UNION
Grocery and Provision Store
Removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-1f

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
2v20-2y

DR. F. HILLER,
Homoeopathic Physician and Surgeon.

Dr. Hiller pays particular attention to Operative Surgery and Midwifery. Office—226 Post street, San Francisco. ms4-6m

E. J. FRASER, M. D.,
SURGEON,

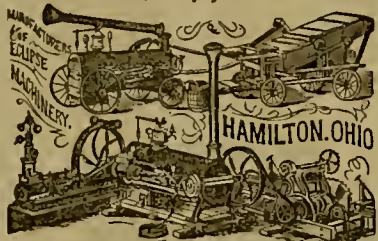
No. 108 Stockton street, S. F., Cal

Eastern Advertisements.

OWENS, LANE, DYER & CO.

MANUFACTURERS OF
The Eclipse Saw Mills,

Combining **THREE PATENTED** Improvements
Essential to *The Well Working of* Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,

Mill Gearing and Machinery.
With the celebrated

STEAM THRESHER, "California Chief"

For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo.

Improved Universal Wood Worker

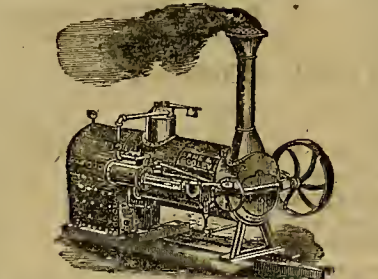


Jointing, Rabbling, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, Ohio.
mail-6m



LANE & BODLEY,
STATIONARY AND PORTABLE

STEAM ENGINES,
PREMIUM CIRCULAR SAW MILLS

—AND—
MILL MACHINERY.

PATENT INDEPENDENT AND SIMULTANEOUS
WROUGHT IRON HEAD BLOCKS.

Patent Lath Machinery,
SHINGLE MACHINES.

SAFETY POWER ELEVATOR.
LANE & BODLEY'S PATENT

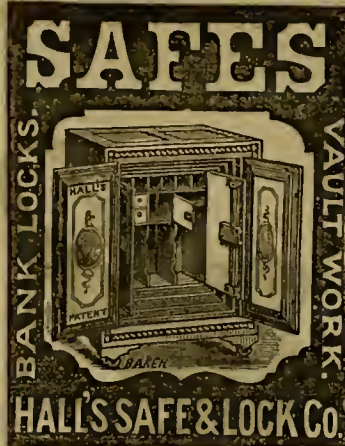
POWER MORTISER,
BLANCHARD'S SPOKE LATHE,
Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery.

SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,
With Self-Lubricating Journal Boxes,
WE HAVE

Three Hundred Pulley Patterns
ONE HUNDRED HANGER PATTERNS,
OF UNIFORM STYLE AND WEIGHT.

Descriptive Circulars & Price Lists furnished on application to
LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

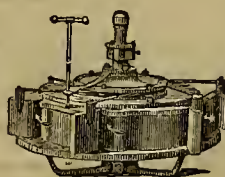
- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati
Prices. Send for Catalogue. mail-6m

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.

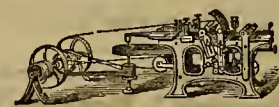
Hydraulic
ENGINEERS,
Patentess
AND
Manufacturers



OF THE Per cent. of Power guaranteed
equal to any Overshot Wheel.

American Turbine Water Wheel,

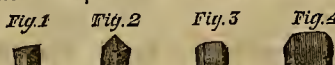
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. mail-6m



RUSS PATENT
MONITOR MOLDING MACHINE,

MADE BY
R. BALL & CO., Worcester, Mass.,
Manufacturers of the latest Improved WOOD-WORKING
MACHINERY for Planing Mills, Car Shops, Agricultural
Implement, Furniture, Sash, Blind, and Door Factories,
etc., etc. Send for Illustrated Catalogue and Price
List.
RICHARD BALL. E. P. HALSTEAD.
ms4-cowly

DICKINSON'S
Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and
set for Dressing Mill Burrs, Emery Wheels, Grindstones,
Conglomerate, Drilling Rock, Sawing or Working Stone,
Tracing up Hardened Steel, and for other mechanical
purposes. Also Glaziers' Diamonds. See Scientific
American, July 24th, Nov. 20th and 27th, 1869; Engi-
neering and Mining Journal, Jan. 17th, 1871; Journal of
the Franklin Institute, Philadelphia, June, 1870. For
Circulars descriptive, and Prices, send stamp to
apl5-6m
J. DICKINSON, 64 Nassau St., N. Y.

Peteler Portable Railroad Co.,

OFFICE, 42 BROADWAY, NEW YORK.

TO CONTRACTORS, MINERS, ETC.



By this invention, one man, with one horse and five
cars, does the work of ten men, ten horses and ten cars.

Highly Approved by all who Use Them
CARS AND TRACKS FOR SALE OR TO LET
Samples at the office. Illustrated Circulars free.

State and County Rights for Sale.

23v22-cow26t

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs.

showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap8-1y

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Miscellaneous.



Of a far Higher Class than any other proprietary
medicine of the day stands

Tarrant's Effervescent Seltzer Aperient.
And for this reason: it is an exact counterpart of one of
the most valuable medicines in the world. We refer to
the great Seltzer Spring of Germany, to which thousands
of the dyspeptic, the bilious, the rheumatic, and the
victims of venal diseases resort annually, and return to
their homes convalescent or cured. The Aperient is
one of the first, and by far the most successful, of all
the efforts made to reproduce, in a portable form, the
popular mineral waters of Europe. SEE THAT YOU
PURCHASE ONLY THE GENUINE ARTICLE.
SOLD BY ALL DRUGGISTS.



STEAM JET PUMP.
Blakeslee & Williams' Patent.—For
Water, Oils, Acids, Etc.



The best COLD WATER
PUMP for filling tanks for
stationary or portable
Steam Engines. Also high-
ly recommended for
MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saves the ex-
pense of putting up and
running an engine.
We ask the attention of
all proprietors of steam
power to the following
points of merit.—It is
operated by steam taken
directly from the Boiler
into the Pump; it has no
valve or wearing parts of
any kind; it requires no
belts, pulleys, or machin-
ery of any kind; it op-
erates entirely independent of an engine; it will not choke
up with foul water; it costs much less to put up and
start; it will not wear out in a lifetime, or require re-
pairs; it is reliable, and certain to work at all times; it
is not liable to injury from freezing.
Satisfaction guaranteed or the money refunded.
Send for Circular. PARKER & HUNT,
Southeast cor. Tenth & K Streets, Sacramento City Cal.
AGENTS—CHAS. F. BROCK, 117 California st., San Fran-
cisco; KEEL & BARGION, Stockton. Can be seen at
MOFFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-4f

THE QUARTZ OPERATOR'S HAND-BOOK,

BY P. M. RANDALL.

REVISED AND ENLARGED EDITION.

CONTENTS:

APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power, ASSAY—Mechanical Assays, Dry Way of Assay, Humid Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur. BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW PIPE—EXAMINATION OF MINERALS. GOLD—Treatment of Ores Containing Gold: By Smelting; By Amalgamation; By Chlorination. MILL—STAMP—SILVER—GOLD. MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of. MINES—VENTILATION OF. QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Tappets, Crans, Cam-Shaft, Stamps, Dies, Screens, Guides, Grinders and Amalgamators, Wheeler & Randall's Excelsior Grinder and Amalgamator, Separators, Wheeler & Randall's Conoidal Separator, Concentrators, Wheeler & Randall's Eureka Concentrator, The Wheeler and Randall Tabular Concentrator and Amalgamator, Retorts, Gold Retorts, Silver Retorts, Crucibles, Ingots, Molds. REDUCTION AND CONCENTRATION OF ORES—DRY WAY. ROASTING—Heaps, Furnaces. SMOELTING SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting, By Solution, By Amalgamation; Extraction of Silver from coarse Copper, Extraction of Silver from Copper Mat, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plates, Cupellation of Gold and Silver, Refining of Gold and Silver.

Sold, Wholesale and Retail, at publishers' rates, by DEWEY & CO., Proprietors SCIENTIFIC PRESS, Patent Agents, Engravers and Publishers, San Francisco. Cloth bound, 175 pages. Price, \$2.

Hubbard, Lippincott, Bakewell & Co.,

MANUFACTURERS.

J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.

Crosby's Patent Gang Saw Buckle; Lippincott & Tullie's Patent Cross Cut Saws; Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both Hubbard & Co. and Lippincott & Co.

Also, SHOVELS, AXES AND SPADES. All orders from the Pacific Coast will receive special attention and be forwarded with dispatch. Our extensive facilities enable us to furnish our Goods at the

Lowest Market Prices,

And all Warranted of SUPERIOR QUALITY.

For Descriptive Catalogues and Price Lists address HUBBARD, LIPPINCOTT, BAKEWELL & CO., mail-16p-tf Pittsburgh, Pa.



The "PAIN KILLER" may justly be styled the great medicine of the world, for there is no region of the globe into which it has not found its way, and been largely used and highly prized. Moreover, there is no clime to which it has not proved to be well adapted for the cure of a considerable variety of diseases; it is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, it is admirably suited for every race of men on the face of the globe.

It is a very significant fact, that notwithstanding the long period of years that the "Pain Killer" has been before the world, it has never lost one whit of its popularity, but on the contrary, the call for it has steadily increased from its first discovery, and at no previous time has the demand for it been so great, or the quantity made so large, as it is to-day. Another significant fact is, that nowhere has the Pain Killer ever been in higher repute, or been more generally used by families and individuals, than it has been here at home, where it was first discovered and introduced. That the Pain Killer will continue to be, what we have styled it, THE GREAT MEDICINE OF THE WORLD, there cannot be the shadow of a doubt.—Providence Advertiser.

STOP PAYING RENT.

San Francisco Co-operative Land and BUILDING ASSOCIATION,

Incorporated March 20, 1871, on the plan of the Eastern Building Associations.

MONTHLY INSTALLMENTS.....\$1.00
PURELY MUTUAL.....Interest, 6 per cent. per year.

Subscription Book now open. Prospectus may be obtained at the office, No. 306 Montgomery street.

GEO. W. BLAKE, President; L. L. BULLOCK, Vice-President; E. C. MORTON, Treasurer; H. B. CONGDON, Secretary. ap1-3m.

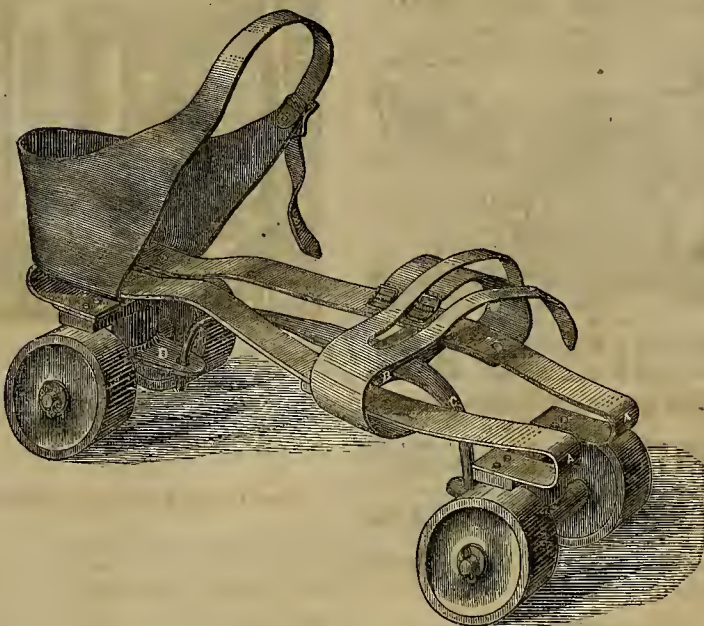
ARTIFICIAL LIMBS.

A. A. MARKS, No. 575 Broadway, N. Y. City.

the inventor and authorized United States Government manufacturer of the celebrated first premium Artificial Limbs with Rubber Hands and Feet, has published a new and enlarged edition of his Illustrated Pamphlet, of importance to all who have suffered amputations, especially to officers and soldiers who lost their limbs in service. Copies sent free to applicants 21v1-13ts-12ts

BOONE'S C-SPRING ROLLER SKATE.

PATENT GRANTED.



This SKATE surpasses in Elasticity, Durability and Ease of Operation, any other Skate in existence. Its superiority has been proved wherever it has come in competition with any other Roller Skate.

FOR DESCRIPTION SEND FOR DESCRIPTIVE CIRCULAR.

Warranted to run longer without requiring to be repaired than any other Skate.

Owners of Rinks will find it the most profitable as well as the most satisfactory to their patrons. The patentees guarantee the right to run this Skate to purchasers of rights for the full term of the patent, and

Warrant it to be no Infringement on any Existing Patent.

State, County, Town and Rink Rights for sale at reasonable terms.

Apply by letter or in person to

UNDERHILL BOYNTON,

105 Montgomery Street, S. F., Cal.,

*General Agent for the United States.

CALIFORNIA CHEMICAL PAINT COMPANY,

MANUFACTURERS OF

AVERILL'S CHEMICAL PAINT, OF THE

Purest White, and 100 Different Shades,

MIXED READY FOR APPLICATION.

This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.

Office, 408 California Street.

MANUFACTORY, Corner Fourth and Townsend Streets.

ap8-3m

G. W. OSBORN, } Agents.
C. F. BROWN, }

THE GIANT POWDER COMPANY

Are now manufacturing besides the famous regular

GIANT POWDER, A NO. 2 GIANT POWDER,

Somewhat slower in its Explosion, which we recommend for

BLANK BLASTING, COAL MINES,

AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.

It is fully as safe as the other and evolves neither smokes nor noxious fumes when exploded.

Price. 50 Cents per Pound.

The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.

20v22-3m16p

BANDMANN, NEILSEN & CO.,

General Agents, No. 210 Front Street.

Manganese! Manganese!

We have on hand, the Best and Purest article of Powdered Black Oxide of Manganese ever sold on this coast. Price, Sixty Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,
CYANIDE OF POTASS,

And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD & CO.,

Corner First and Market Streets, San Francisco. 22v-17-3m

AHEAD OF THE WORLD.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity. The Howe is the Best, Consequently the most Popular Machine in use. The Daily manufacturers are over 500 Machines.

H. A. DEMING, Agent,
ap15-3m No. 113 Kearny street, San Francisco.

HIBBERD, SANBORN & CO.

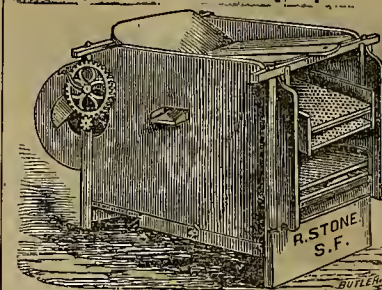


South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly at ended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Tsn Pins. Fancy Jewels and Balusters. 21v22-5m.

INTERNATIONAL HOTEL,
San Francisco, Cal.

This Favorite House is located on Jackson street, a few doors west from Montgomery; offers the greatest inducements for Families. The International Coach will be at each Car Depot and Steamboat, plainly marked International Hotel, to convey passengers to the Hotel FREE, and to any part of the city at reasonable rates.

F. E. WEYGANT & H. C. PARTRIDGE,
24v22-3m Proprietors.

THE PATENT
Novelty Mill and Grain Separator

Is one of the greatest improvements of this age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to R. STONE,
25v22-3m 422 Battery street, San Francisco.

HOOKER'S Lift and Force.
Improved

DEEP-WELL Pump

112 and 114 California street, San Francisco.

Latawana Mining Company, near Hamilton City, White Pine, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of May, 1871, the several amounts set opposite the names of the respective Shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
D. M. Hosmer.....	11	10	\$ 2 00
D. M. Hosmer.....	14	50	2 00
Joseph Bremer.....	55	1	1 00
Joseph Bremer.....	100	1	20 00
Joseph Aaron.....	57	2	40
J. A. Alexander.....	58	2	40
P. Conklin.....	196	200	40 00
P. Conklin, Trustee.....	210	100	20 00
P. Conklin, Trustee.....	211	50	10 00
P. Conklin, Trustee.....	212	100	20 00
P. Conklin, Trustee.....	213	100	20 00
P. Conklin, Trustee.....	214	100	20 00
P. Conklin, Trustee.....	215	100	20 00
P. Conklin, Trustee.....	216	100	20 00
P. Conklin, Trustee.....	217	100	20 00
P. Conklin, Trustee.....	218	100	20 00
P. Conklin, Trustee.....	219	100	20 00
P. Conklin, Trustee.....	220	60	10 00
P. Conklin, Trustee.....	221	17	3 40
P. Conklin, Trustee.....	222	20	4 00
P. Conklin, Trustee.....	223	50	10 00
P. Conklin, Trustee.....	224	50	10 00
P. Conklin, Trustee.....	225	50	10 00
P. Conklin, Trustee.....	226	50	10 00
S. E. Holcombe.....	127	10	2 00
M. M. Baldwin.....	114	10	2 00
M. M. Baldwin.....	224	183	36 60
E. W. McKinstry.....	202	168	33 60
E. W. McKinstry.....	298	60	12 00
A. P. Everett.....	263	75	15 00
John Clement.....	232	45	9 00
George A. Harris.....	171	100	20 00
George A. Harris.....	172	100	20 00
George A. Harris.....	173	160	20 00
George A. Harris.....	174	100	20 00
L. D. Simpson.....	233	50	10 00
E. W. McKinstry.....	202	1000	200 00
John H. Boden.....	161	100	20 00
John H. Boden.....	162	100	20 00
John H. Boden.....	163	100	20 00
D. W. White.....	168	100	20 00
O. H. Burton.....	268	164	32 80
Richard Brainard.....	170	100	20 00
Botts & Wise.....	249	400	80 00
George F. Dyer.....	177	100	20 00
John G. Ayers.....	298	60	12 00
T. G. Lamb.....	231	50	10 00
James Brooks.....	236	50	10 00
James Brooks.....	237	50	10 00
James Brooks.....	238	50	10 00
James Brooks.....	239	50	10 00
James Brooks.....	240	50	10 00
James Brooks.....	241	50	10 00
James Brooks.....	242	50	10 00
James Brooks.....	243	50	10 00
James Brooks.....	244	50	10 00
James Brooks.....	245	50	10 00
James Brooks.....	246	25	5 00
S. Heydenfeldt, Jr.....	270	50	10 00
S. Heydenfeldt, Jr.....	271	50	10 00
H. K. Drake, Trustee.....	272	100	20 00
H. K. Drake, Trustee.....	273	100	20 00
H. K. Drake, Trustee.....	274	100	20 00
H. K. Drake, Trustee.....	275	100	20 00
H. K. Drake, Trustee.....	276	100	20 00
H. K. Drake, Trustee.....	277	100	20 00
H. K. Drake, Trustee.....	278	100	20 00
H. K. Drake, Trustee.....	279	100	20 00
H. K. Drake, Trustee.....	280	100	20 00
H. K. Drake, Trustee.....	281	100	20 00
H. K. Drake, Trustee.....	282	100	20 00
H. K. Drake, Trustee.....	283	100	20 00
H. K. Drake, Trustee.....	284	100	20 00
H. K. Drake, Trustee.....	285	100	20 00
H. K. Drake, Trustee.....	286	100	20 00
H. K. Drake, Trustee.....	287	100	20 00
H. K. Drake, Trustee.....	288	100	20 00
H. K. Drake, Trustee.....	289	100	20 00
H. K. Drake, Trustee.....	290	100	20 00
H. K. Drake, Trustee.....	291	100	20 00
H. K. Drake, Trustee.....	292	100	20 00
H. K. Drake, Trustee.....	293	100	20 00
H. K. Drake, Trustee.....	294	100	20 00
H. K. Drake, Trustee.....	295	100	20 00
H. K. Drake, Trustee.....	296	100	20 00
H. K. Drake, Trustee.....	297	500	100 00
Thomas P. Hawley.....	302	200	40 00
David S. Terry.....	303	200	40 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of May 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of this Company, 614 Merchant Street, room 26, San Francisco, California, on Tuesday the 11th day of July, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, California. 25v22-2w

Office of Silver Sprout Mining Company,
205 Front street, San Francisco, May 25, 1871.—Stockholders' meeting.

Notice is hereby given, that the annual meeting of the stockholders in the above named company, will be held at the office of the company, No. 205 Front street, San Francisco, on Tuesday, June 27th, 1871, at the hour of 12 o'clock noon.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company—Location

of Works, Gress Valley, Nevada County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the twenty-third day of May, 1871, an assessment (No. 2) of twenty-five cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, No. 23 Merchants' Exchange, San Francisco.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-sixth day of June, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees. DAVID WILDER, Secretary, Office, No. 23 Merchants' Exchange, California street, San Francisco, Cal. 21v22-1m

Altona Number One Gravel Mining Company.

Alta Hill, Gress Valley, Cal.
The first annual meeting of the stockholders in the above named Company will be held at their office, No. 28 Merchants' Exchange, San Francisco, on Thursday, July 6th, 1871, at 2 o'clock p. m., for the election of Trustees, and the transaction of other business. By order of the President. DAVID WILDER, Secretary, jun15-5w

Eagle Quicksilver Mining Company—Location

of Works, Santa Barbara County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of June 1871, an assessment of twenty dollars per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No. 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 3rd day of August, 1871, shall be deemed delinquent, and will be duly advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary, Office, Room 5, No. 302 Montgomery street, San Francisco, California.

Hanscom Copper Mining Company—Location

Low Divide District, Del Norte County, California.
Notice.—There are delinquent upon the following described stock, on account of assessment levied April 28th, 1871, the several amounts set opposite the names of the respective shareholders, as follows.

Names.	No. Certificate.	No. Shares.	Am't.
Ayres, Washington.....	13	1	\$5 00
Birch, W. W.....	10	1	5 00
Brainard, Henry.....	60	2	5 00
Chapman, Mary.....	93, 94, 95	12	60
Carroll, Owen.....	1	4	20
Colby, H. H.....	88	7	35
Dudley, Eben.....	2	2	10
Delano, A. S.....	62	16	85
Eggers, George.....	83	3	15
Gretchen, Washington.....	3	3	15
Hadlock, William.....	86	8	40
Hamond, John.....	57, 44, 36	21	1 05
Huber, Joseph G.....	81, 84, 85	30	1 50
Herrick, A. H.....	89	5	25
Kinsman, O. W.....		100	5 00
Kersey, John D.....	72	8	40
Kelly, Lewis.....	2	2	10
Lord, W. C.....	65	8	40
Miller, A. D.....	25	1	5
Mirill, R. A.....	41	28	1 45
North, D. F.....	97	7	35
Putnam, O. B.....	61	5	25
Reed, Sarah M.....	11	26	1 30
Ruggles, John.....	23, 52	8	40
Rosenman, Joseph.....	17, 42	16	85
Smith, H. B.....	5	1	5
Steere, Thomas F.....	81	1	5
Sutter, Augustus.....	80	8	40

And in accordance with law, and an order of the Board of Trustees made on the 28th day of April 1871 so many shares of each parcel of said stock as may be necessary will be sold at Public Auction at the Office of E. N. Stratton, 128 Kearny street, on Monday the 26th day of June, 1871, at the hour of 11 o'clock a. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JAMES BIDDLE, Secretary.
Office Golden State Iron Works, 21 and 23 First street, San Francisco, Cal. 24v22-2t.

Kincaid Flat Mining Company—Location

of Works, Tuolumne County, State of California.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows.

Names.	No. Certificate.	No. Shares.	Am't.
S. Card.....	10	10	\$25 00
S. Card.....	30	5	12 50
James Nelson.....	31	10	25 00
James Nelson.....	32	10	25 00
Wm. H. Sharp.....	35	10	25 00
Wm. H. Sharp.....	36	10	25 00
N. G. Carter.....	104	12	30

And in accordance with law, and an order of the Board of Trustees, made on the 28th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Kincaid Flat Mining Company, 220 Clay street, San Francisco, Cal., on the 1st day of July, 1871, at the hour of 10 o'clock a. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

N. C. FASSETT, Secretary pro tem.
Office, 220 Clay street, San Francisco, Cal. jun10-4w

Marcelina Silver Mining Company—Location

of Works, Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 2d day of June, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold and silver coin, to the Secretary, Room 21, Hayward's Building, 419 California Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 11th day of July, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, Aug. 1st, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building 419 California Street, San Francisco, Cal. 23v22-4w

Mohawk & Montreal Cons. G. & S. M.

Co., Meadow Lake, Nevada County, State of California.
Notice.—A special meeting of the stockholders of the above named company for the purpose of electing Trustees and such other business as may properly be brought before the meeting, will be held on Tuesday, the 27th day of June, 1871, at 2 o'clock, p. m., at the office of R. Wogener, No. 414 California street, San Francisco, Cal.

PERRY WHALEN, } Trustees.
P. G. VENARA, }

BERRY & PLACE,
Importers and Dealers in
MACHINERY AND SUPPLIES.

SAN FRANCISCO, CAL.

Sole Agents in Pacific States for Sale of

Blake's Patent Steam Pumps,
Smith's Wood-Working Machinery,
Davis & Furber's Woolen Machinery,
The Swain Turbine Water Wheel,
Wood, Light & Co.'s Machinists' Tools,
Sturtevant's Pressure Blowers,
Hardy's Portable Drillers,
Dreyfus' Patent Self-Oilers,
Gardner's Safety Stop Governor,
Page's Belting, Etc., Etc.

We keep in stock the above, with a large variety of other Machinery and Small Tools.

Dreyfus' Patent Self-Oilers and Cylinder Cups.

A saving in oil of 75 to 95 per cent. guaranteed. No trouble of "oiling up!" No waste of oil! No oil cans needed!

by the use of the

NATHAN & DREYFUS

SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of

75 PER CENT OF OIL.

They are composed of a transparent Glass Cap, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.
Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'. Send for Circular and Price List to BERRY & PLACE, San Francisco.

GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, ewels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK or FINISHED, as you may require. Send for Price List to BERRY & PLACE, San Francisco.

Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages: First—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind. Second—Its great economy of both tallow and fuel. Third—It is self acting, and supplies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be in fact blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information, or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warerooms, 112 and 114 California street, San Francisco.

WOODWORTH

PLANERS.



DIMENSION

PLANERS.

PLANERS AND MATCHERS,

With Patent Expansion Feed Gears and other Improvements. Also, every description of the most improved

Patent Wood-Working Machinery,

Embracing Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machines, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arbors, Knife Grinders, Moulding Heads, Mortising Chisels, Miterer Sets, Band-Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sole Leather, Belt Studs, etc., for sale at Eastern Prices, at the Machinery Depot of

21v22-4f

BERRY & PLACE, 112 and 114 California St., San Francisco.

Mountain City Mining Company—Location

of mines, Cope District, Elko County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of June, 1871, an assessment of Twenty-five (25) cents per share was levied upon the capital stock of said company, payable immediately in United States gold coin, to the Secretary, at the office of the company, No. 266 Front street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 18th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 8th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. R. WINGAKO, Secretary.
Office, 206 Front street, San Francisco. 24v14w

Nevada Land and Mining Company—Location

of works, Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 7) levied on the 8th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Henry R. Miller.....	unissued.	2,000	\$80 00
H. C. Kibbe.....	unissued.	1,000	40 00
Washington Meeks.....	unissued.	2,400	80 00

And in accordance with law and an order of the Board of Trustees, made on the 8th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 3d day of July, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. 23v22-4w

Ophir Copper, Silver and Gold Mining

Company—Location of Works, Ophir, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of May, 1871, an assessment of sixty (60) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 30th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. G. BRUSH, Secretary.
Office, No. 314 California street, San Francisco, Cal. 34-4w

Pinto Mining Company, Location of Works,

Silmar, Pinto Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of May, 1871, an assessment of twelve and a half cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, D. B. Arrowsmith, 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 30th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 17th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery street, San Francisco.

Salamander Gold and Silver Mining

Company—Location of works, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Jeremiah Dwyer.....	171	50	\$17 50
Jeremiah Dwyer.....	172	20	7 00
Jeremiah Dwyer.....	173	20	7 00
Jeremiah Dwyer.....	174	10	3 50
Christopher Dunker, Trustee, 18	5-19	10	3 50
R. W. Dowling, balance of.....	316	80-19	28 09
Henry Gremke, Trustee.....	223	20	7 00
Christopher Hahn.....	25	10	3 50
John Kahr.....	311	6	2 10
Johanna Lyseth, balance of.....	88	1-19	50
James H. Morgan.....	43	10	3 50
James Murphy, balance of.....	241	1010-19	3 67
James McCombs.....	259	25	8 75
R. F. Ryan.....	216	5	1 75
Ouncan Ross, Trustee.....	166	45	15 75
Duncan Ross, Trustee.....	239	10	3 50
Ouncan Ross, Trustee.....	270	10	3 50
Duncan Ross, Trustee.....	271	20	7 00
Duncan Ross, Trustee.....	310	155-19	54 34
Geo. W. Smith, balance of.....	308	2	70
Dr. O. P. Warren.....	243	10	2 50
Dr. O. P. Warren.....	245	5	1 75
Dr. O. P. Warren, balance of.....	248	2	70

An in accordance with law and an order of the Board of Trustees, made on the 4th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Joseph Marks, No. 604 California street, on Monday, the 10th day of July, 1871, at the hour of 10 o'clock a. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. DEFFER, Secretary.
Office, 210 Post street, San Francisco. 25v22-3w

Sierra Iron Company—Location of Works,

Sierra and Plumas Counties, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 17th day of May, 1871, an assessment of six (6) cents per share was levied upon the capital stock of said company, payable immediately in United States gold or silver coin, to the Secretary, at the office of the Company, No. 428 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 20th day of July, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CALEB T. FAY, Secretary.
Office, Room No. 7, 428 California street, San Francisco. 26v22-4w

Taylor Mill and Mining Company—Location

of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 27th day of May, 1871, an assessment of ten (10) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, No. 530 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 4th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. J. MURPHY, Secretary.
Office, 521 Montgomery street, over Sather & Co's Bank San Francisco, Cal. jun10-4w

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF**STEAM ENGINES,**Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved
Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 8-47

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.**Steam Engines and Boilers,**

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

(Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR. 18v20-3m**MACHINERY**

—AT—

GREATLY REDUCED RATES.**Miners' Foundry & Machine Works,**235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States
ascertain our prices before purchasing. 8v20g**PACIFIC****Rolling Mill Company,**

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames**HAMMERED IRON**

Of every description and size.

Orders addressed to **PACIFIC ROLLING MILL**
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

The highest price paid for Scrap Iron 9v143m

J. C. CALDWELL,
President.REESE LLEWELLYN,
Superintendent.**COLUMBIA****Co-operative Foundry Company,**

(INCORPORATED MARCH 16, 1871),

133 and 135 Beal Street, between Mission and Howard,
SAN FRANCISCO.

Manufacturers of

MACHINERY AND CASTINGS

of every description.

Particular attention given to Castings for Mills and
House Fronts. All Work done at the Lowest Price and
Shortest Notice. 23v22-3m**CAST IRON PIPE,**
FOR WATER AND GAS.PIPE of all sizes, of a very superior quality, is now
being made at the**PACIFIC IRON WORKS,**

In this city, under the Patents of Farrar & Whiting.

23v22-3m

McAfee, Spiers & Co.,**BOILER MAKERS****AND GENERAL MACHINISTS,**Howard st, between Fremont and Beale, San Francisco
2v21-1f**FAIRMOUNT MACHINE WORKS, 2106 WOOD STREET,**

Power Loom Works, N. W. Cor. Hamilton and 21st Streets,

PHILADELPHIA, PENN.

THOMAS WOOD,

MANUFACTURER OF

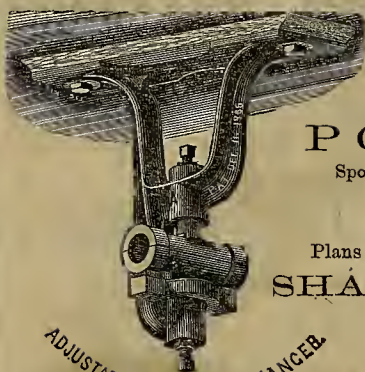
POWER LOOMS,

Spooling, Winding, Beaming, Dyeing and Sizing Machines,

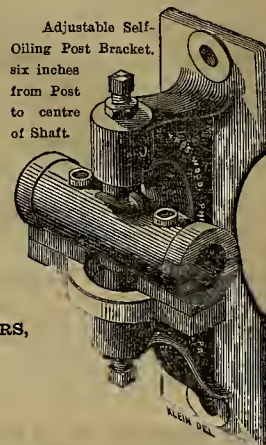
ALSO SELF-ACTING

WOOL SCOURING MACHINES.

Plans taken and Factories fitted out complete with.

SHAFTING AND GEARING,PULLEYS, COUPLINGS AND SELF-OILING HANGERS,
ADJUSTABLE OR RIGID BEARINGS
ALWAYS ON HAND.

ADJUSTABLE SELF-OILING HANGER.

Adjustable Self-
Oiling Post Bracket.
six inches
from Post
to centre
of Shaft.**To Coal Operators, Miners and Railroad Corporations.**

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors,
Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsyl-
vania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.
Messrs. G. & L. were the PATENTEEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced
into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

BOILERS

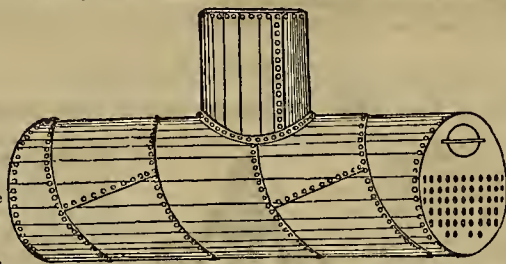
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



22v22-3m

Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

VULCAN IRON WORKS,

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

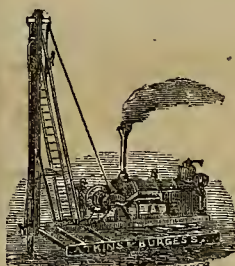
GEARING AND

GENERAL MACHINERY

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m

**NELSON & DOBLE,**

AGENTS FOR

Thomas Firth & Sons' Cast Steel.MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14g**SEVERANCE HOLT & CO.,**

MANUFACTURERS OF

Diamond-Pointed Drills**AND DRILLING MACHINERY,**For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, Room 16, No. 315 CALIFORNIA STREET,
San Francisco. 25v20-3m**CALIFORNIA BRASS FOUNDRY,**No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF Brass, Composition, Zinc, and Babbit Metals
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superlative tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
necting Rods of all sizes and patterns, furnished with dispatch.
—PRICES MODERATE.—
J. H. WEEB V. KINGWELL.**THE RISDON****Iron and Locomotive Works.**INCORPORATED.....APRIL 30, 1868
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Roller Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.Directors:
S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. B. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.**California File Manuf'g Co.**

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSCHOFF,

L. KRAMER.

REAPER AND MOWER SECTIONS, BARS

AND KNIVES COMPLETE.

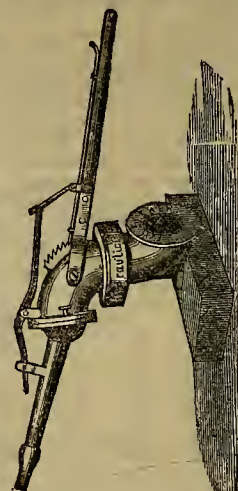
At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 9v19-gy**THOMPSON BROTHERS,****EUREKA FOUNDRY,**and 131 Beale street, between Mission and Howard
San Francisco.**LIGHT AND HEAVY CASTINGS,**

of every description, manufactured 24v16qr

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE

is the Best Hydraulic Machine in Use.



MACHINES MANUFACTURED TO ORDER,

to throw from one to an eight-inch stream.

ALL KINDS OF MACHINES

Built to order, and Repairing done promptly.

NOZZLES TURNED OUT AND FITTED FOR ALL MACHINES AT

F. H. FISHER'S

Sacramento Street Machine Shop,

HYDRAULIC MINERS, TAKE NOTICE.

The notice published by R. R. and J. Craig, that they
have suits pending in the United States District Court,
which involves the working principle of my HY-
DRAULIC CHIEF, is false.I caution all miners to beware of the efforts of the
said Craigs to intimidate my patrons or extort money
from them by false representations.
I have a full patent for my Hydraulic Chief, granted
December 20th, 1870. No. of patent, 110,222.

24v22-1m

F. H. FISHER.

The Stetefeldt Furnace.For information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.Dancon's Building, Room 1, California Street,
4v21-1yMr. L. L. LEWIS, OF MONITOR, CAL., is not my
Agent, nor has he authority to negotiate anywhere for
the FURNACES, MACHINES AND PROCESSES OF
WHEELPLEY & STORER, nor for the STETEFELDT
FURNACE in ALPINE or MONO Counties.JACOB. J. STORER,
Boston, Mass.**SHEET IRON PIPE.**

THE

Risdon Iron and Locomotive WorksCorner Howard and Beale Streets,
Are prepared to make SHEET IRON AND ASPHALTUM
PIPE, of any size and for any pressure, and contract to
lay the same where wanted, guaranteeing a perfect
working pipe with the least amount of material.
All kinds of CAR WHEELS, AXLES and RAILROAD
WORK made to order. Standard sizes of Wheels con-
stantly on hand. Wheels bored and pressed on, Axles
turned, etc., at Reasonable Rates.
24v22-3m

JOSEPH MOORE, Superintendent.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Donbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14v1 SACRAMENTO CITY

Machinery.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

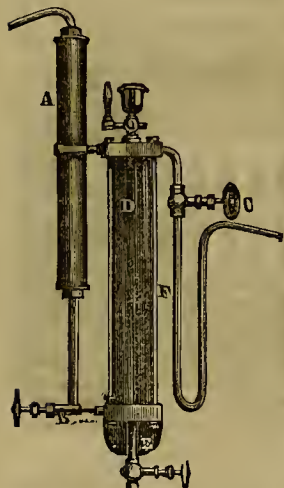
DO NOT BE DECEIVED

by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN H. WILSON,
San Francisco.

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, COR. Mission & Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before re-charging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C.

TRAVIS & WAGNER!

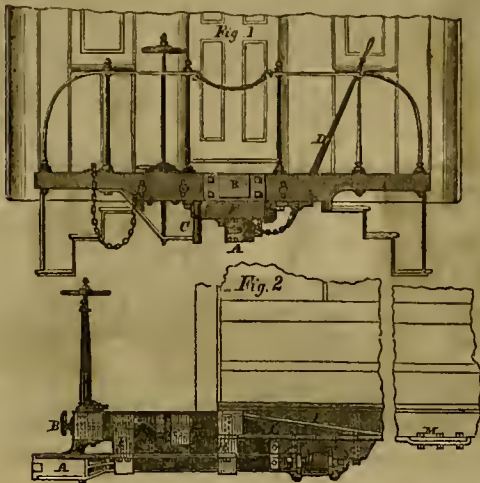
AGENTS FOR

Dufour & Co's.,
Celebrated Dutch Anchor brand Bolt-Machines; Smut-Machines; Brass Dusters; Mill-Picks; Mill-Picks dressed; Mill-tones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2722-1yins 41 First st., San Francisco.

MILLER'S TRUSSED PLATFORMS,
COMPRESSION BUFFERS AND AUTOMATIC COUPLERS, FOR RAILROAD CARS.



PATENTED MARCH 31, 1863, JANUARY 31, 1865, AND JULY 24, 1866.

Office—No. 231 Broadway, Rooms 4 and 5, opposite City Hall Park, New York.

The advantages gained by the use of these improvements may be briefly stated as follows:

- 1st. The platforms are held in a plane with the sills on the cars.
- 2d. The platforms cannot be broken by any ordinary accident.
- 3d. Telescoping is impossible.
- 4th. Any required compression may be attained, to prevent accidents by oscillation.
- 5th. No links and Pins are required, and no one is required to go between cars to couple them.
- 6th. The platforms may be held as close together as desired.
- 7th. By close coupling the train is shortened.
- 8th. They will not accidentally uncouple.
- 9th. They may be uncoupled "without shutting off," to make a flying switch.
- 10th. They are strong; the train will not "break in two" at starting or while running.
- 11th. They cause the train to move steadily and not jerk in starting or stopping.
- 12th. They work well at great variations of height.
- 13th. They will couple with all kinds of "drawheads" and "couplers."
- 14th. They are cheap and durable.
- 15th. Injury to men when coupling cars is entirely prevented.
- 16th. Injury to persons by falling between cars is entirely prevented.
- 17th. Injury to persons and to cars by "telescoping" is entirely prevented.
- 18th. Injury to persons and to cars by "oscillation" is entirely prevented.
- 19th. The great steadiness of the cars, produced by compression, renders sleeping cars much more desirable.
- 20th. "Train Brakes" are rendered more valuable by the non-existence of "slack" in the train.

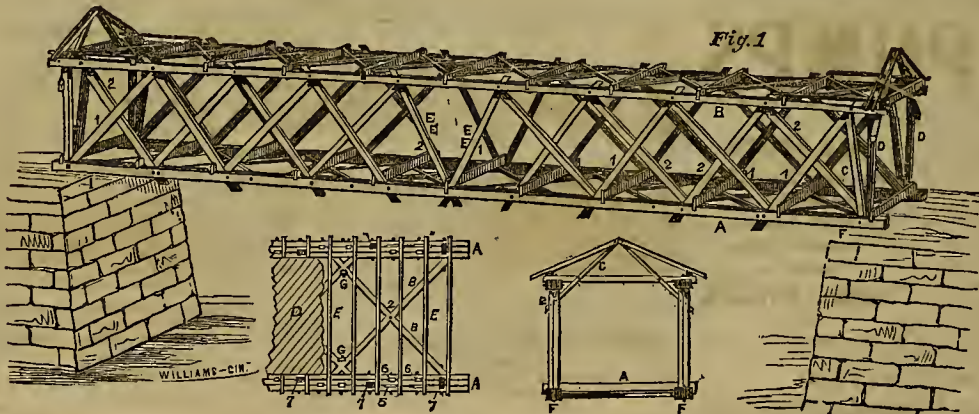
No Railroad Manager who comprehends the case fails to give these improvements a "trial," and all those who have tried them have adopted them.

Prices of Materials, Etc.

Coupling Hooks.....	\$24 50 each.
Buffers.....	11 00 each.
Levers.....	2 00 each.
Patterns in Full Sets, or Single Pieces, for all castings used in the Improvements; and Templates, for Wrought Irons, AT COST.	Drawings,
Tracings, and superintendence of work are not charged for.	
These articles will be promptly furnished and shipped to any part of the country on short notice. Orders must state what routes the goods are to go, and whether by express or as ordinary freight.	
23v22tf	

E. MILLER.

PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:
Being built of wood entirely, they are not affected by change of temperature.
The timber used is placed so directly in the line of strain, that less material is required to support the same load.
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

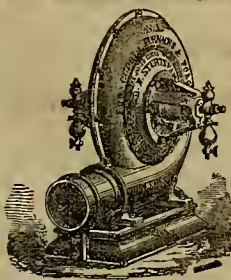
W. H. GORRILL, President.



Dufour & Co's.,
Celebrated Dutch Anchor brand Bolt-Machines; Smut-Machines; Brass Dusters; Mill-Picks; Mill-Picks dressed; Mill-tones repaired; rebuilt and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.
2722-1yins 41 First st., San Francisco.



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,
San Francisco,
who have the different
sizes always in
store. 4v22

VENEER

CUTTING MACHINE

FOR SALE.

The largest and finest in this country, together with pulleys, belts, shafting, etc., all in perfect order.
Extreme length of cut.....11 feet 2 inches
Extreme width of cut.....29 1/2 inches
Thickness of log.....27 inches
Capacity, 60,000 feet per day, from 7 to 250 veneers to the inch
For further particulars apply to
22v22-1m. E. H. GALFEN, No. 2 Post street.

The Patent Wood Horse Collar
AND HAME COMBINED

Is the Best, Most Convenient and Durable Collar ever used. Will last ten times as long as the Leather Collar. Always keeps its place and shape. No stitches to hurt, or stuffing to press out. Wood, being cool, never swells or calls the animal. Keeps the Neck and Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sores of Shoulders

In Three Weeks, Working Every Day.
For further particulars as to price of Collars, etc apply to or address WILDMAN & MARBLE,
No. 30 California Street, San Francisco,
Proprietors for the Pacific Coast.
Agents Wanted. 19v22-2m

Pacific
Insurance Company,
No. 22 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and *Marine*
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

For Steam Pipes & Boilers **Hair Felting**

For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

Leather Belting, Boiler Felt, Belt Stuffs, Steam Packing, Self Oilers, Linen Hose, Tube Scrapers, Lace Leather, Flaming Mill, and Engineer's Supplies, Etc.,
For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

Page's Patent-Tanned Leather **Belting**

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

STURTEVANT'S
Pressure **BLOWERS**
PATENT.

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

BLAKE'S
Patent **PUMPS**
Steam

For sale by Berry & Place, Machinery Depot, 112 Cal. St., S. F.

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and
Washington streets,
SUPPLIES ALL
Eastern Periodicals,
BY THE
Year, Month, or Number.

MAGAZINES.	P. An
Harper's.....	\$4 00
Atlantic.....	
Godsey.....	
New York Ledger.....	
Blackwood.....	
Hours at Home.....	
Good Words.....	3 00
Peterson's.....	
Arthur.....	
Lady's Friend.....	
Harper's Weekly.....	5 00
Chimney Corner.....	
Literary Album.....	
London Society.....	6 00
All the Year Round.....	
London Ill. News.....	15 00

GOLD-SAVING
Silver-Plated Amalgamating Plates

FOR MINERS AND MILL MEN,

At San Francisco Plating Works, 655 Mission Street, San Francisco.

Goods of every description Plated.
Old Goods Re-plated.

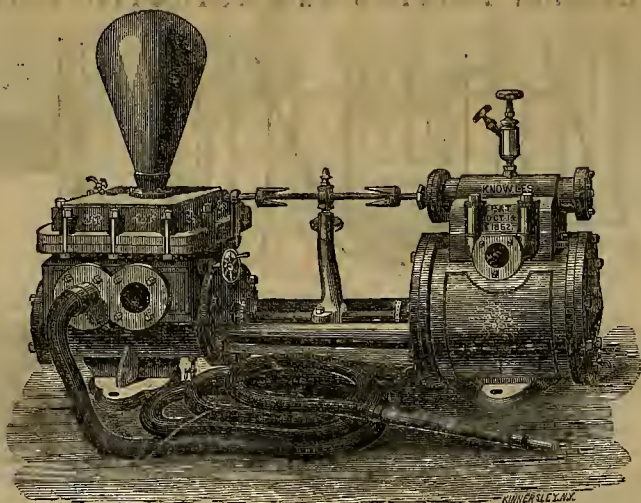
E. G. DENNISTON, Proprietor.
24 1/2-23m

The Angel's Quartz Mine

Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the
BLAKE STEAM PUMP
Sold by BERRY & PLACE,
112 California St., San Francisco.
4v22

G. J. KING, B. KIMBALL, F. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p]

KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, Cal., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, Oregon, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order for steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are excellent and simple in construction, and do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully,

G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 20, 1871.

Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly

GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

WM. W. WOOD.

OFFICE OF THE THOMAS IRON WORKS, HOKENDAUQUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we had in use is now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLERTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given very great satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

OFFICE OF THE NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 15-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

CENTRAL AND WESTERN PACIFIC AND OAL AND OREGON RAILROADS, OFFICE SUP. M. P. & M., SACRAMENTO, Cal., July 8, 1870.

A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 3d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction, and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN OLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD.

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks,
and Valves of all descriptions, made and repaired.
Hose and all other Joints, Spelter, Solder and Cop-
per Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
Gloves, Steam Whistles, HYDRAULIC PIPES AND
NOZZLES for mining purposes. Iron Steam Pipe fur-
nished with Fittings, etc. Coupling Joints of all sizes,
Particular attention paid to Distillery Work. Manufac-
turer of "Garratt's Patent Improved Journal Metal."
Highest Market Price paid for OLD BELLS, COP-
PER and BRASS.
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont Street, near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economi-
cal Saws in the World.

Each Saw is Warranted in every respect.
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING,
MADE OF FULLER RAWHIDE, Factory, South Park Mills,
Brannan street, bet. Third and Fourth, San Francisco.
Pacific Saw Manufacturing Co. are Sole
Agents for H. Royer's Lacing Leathers.

John G. Hodge & Co.,
IMPORTERS AND WHOLESALE
STATIONERS.



KEEP A LARGE STOCK OF
Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &c

Blank Books made to order from Crew
Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
Agents for A. W. Fabre's genuine Lead Pencils.
327, 329 & 331 Sanson St. San Francisco.
19v2leonly

BAIRD'S
BOOKS
FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTI-
CAL AND SCIENTIFIC BOOKS, complete to April 15,
1871, 94 pages, 8 vo., will be sent, free of postage, to any
one who will favor me with his address.
HENRY CAREY BAIRD,
Industrial Publisher, 408 Walnut St.,
Philadelphia.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JULY 1, 1871.

VOLUME XXII.
Number 26.

Universal Boring Machine.

In the SCIENTIFIC PRESS of October 15, 1870, was illustrated an excellent device,—a universal wood-working machine. The machine here illustrated is manufactured by the same firm, and is certainly a valuable addition to the many wood-working machines now in use.

A boring machine, though one of the simplest, is yet a most necessary adjunct to a full outfit of wood-working machines. The one here illustrated is most complete, and the great variety of work it is capable of performing, renders the name chosen for it peculiarly applicable. It is called the "Universal Boring Machine," because the most prominent feature of its construction is its power to bore a hole in any desired angle with the axis of the bit.

Any sized bit required is inserted into the chuck, which is adjustable to fit large and small shanks. The mandrel carrying the chuck is made to traverse by a foot lever so as to bore any depth up to 12 inches. The mandrel is driven by belt from a cone pulley of three faces, which gives the proper speeds for different sized bits.

Slots and stops upon the table enable the work to be set at any desired angle on the horizontal plane, while the table can be set on an incline to any angle not exceeding 45°. The table is 21 in. wide, with 15 in. slide, and it can be raised or lowered 15 in.

The countershaft rests in self-adjusting boxes, and has a tight and a loose pulley eight inches in diameter. The traversing mandrel is of the best quality of steel, and the machine is otherwise made of iron in a substantial manner. The several adjustments enable the operator to do all kinds of boring, with ease and rapidity.

This machine was awarded the first premium at the Cincinnati Industrial Exposition in October, 1870. Already one at least has been sent to our coast (to Portland, Oregon), to our knowledge, and more may have been sent of which we have no information. But we have no doubt but that many will be found necessary on this slope. It is manufactured by McBeth, Bentel & Margedant, of Hamilton, Ohio, who may be addressed for machines, rights to manufacture, or other information.

UNION AND NORTHERN PACIFIC RAILROAD.—The Omaha Herald, of June 20th, says that on June 19th a party of surveyors left Omaha to run a line from Evanston, on the U. P. R. R., through the valley of the Bear river, north and northwest, via Soda Springs and Snake river, to Helena and Virginia City, Montana, to tap the N. P. R. R.

A Remarkable Plant from Nevada.

At a late meeting of the California Academy of Sciences, Dr. Blake presented some specimens of *Phycochromaceae* of *Algae* which, in an excursion into Nevada, he had found

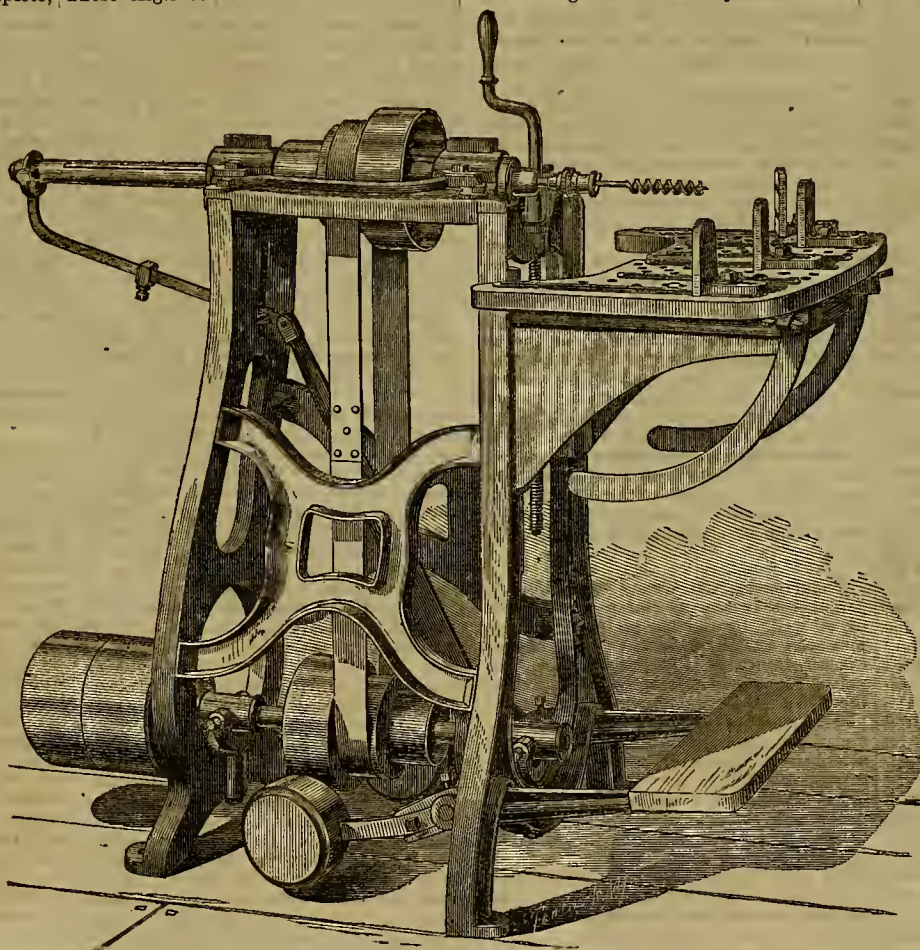
Growing in a Hot Spring

In the Penabla valley. The temperature of the spring he believed to be about 140° to 150°, but having no thermometer, this could not be ascertained with accuracy. These *Algae* consist of delicate hair-like

older seas where the temperature of the water must have been far higher than it is at present. Many diatoms were found associated with these *algae*, the forms of which were considered to be more closely related to those found in infusorial earth than to the diatoms of our colder waters. This point, however, was reserved for further investigation.

Academy of Sciences.

A meeting of the Academy was held on



McBETH, BENTEL & MARGEDANT'S UNIVERSAL BORING MACHINE.

cells, and probably constitute the smallest vegetable known. With a magnifying power of 700 diameters they still appear no larger than a hair, and approximately measured about 1-70,000th of an inch. They belong probably to the *Spirulina* and *Oscillaria*.

The most marked peculiarity of these plants is the extraordinary places in which they grow. They are found not only in hot saline springs, but in chemical solutions of the most poisonous substances, as arsenical solutions, which would be fatal to every other form of vegetable and animal life. They are the lowest forms of organized beings, developing no spores, but multiplying by simple division. Their growth in hot saline solutions renders it probable that they were the

Earliest Form of Vegetable Life
On the globe, as they would grow in the

Monday evening to complete the organization by the election of the necessary officers.

Officers.

The following is a complete list of the officers of the Society: President, Dr. James Blake; Vice-President, Prof. George Davidson, U. S. Coast Survey; Cor. Secretary, Dr. J. G. Cooper; Rec. Secretary, A. D. Hodges, Jr.; Treasurer, Elisha Brooks; Librarian, S. L. A. Brannan; Director of Museum, H. G. Bloomer.

The Board of Trustees is now constituted as follows: The President, Recording Secretary and Treasurer (as above) *ex officio*; Dr. C. M. Hitchcock, Gen. John Hewston, F. L. A. Pioche and Samuel Hubbard.

The next meeting will be held Monday evening, July 3d.

Eastern Visitors to Our State Fair.

The number of visitors from the Eastern States to our State Fair this fall is likely to be very large. Numerous inquiries are being made of the Secretary of the Board of Agriculture in regard to a reduction of fare on the railroads for such visitors. Upon application to the officers of the Central Pacific road, they have authorized the publication of the following liberal terms of rates of fare from Omaha to Sacramento and return. In companies of twenty-five, the round trip will be \$170 each. In companies of fifty, the round trip will be \$130 each. In companies of any larger number, the prices will be reduced in the same ratio. Applications for tickets for such excursions upon the above named terms to be made at the office of the railroad at Omaha. The above rates will be payable in currency. All articles or animals to be exhibited at the State Fair the Central Pacific Road will transport to and from the Fair free of charge. These terms will enable the people in the States and Territories east of the Rocky Mountains to be represented both as to themselves and their products at our Fair with but little expense, and we shall expect to see a large representation.

It stands our own people in hand to see that the reputation of California is fully maintained by a full exhibition of the products of all her industries. Many portions of the State, on account of the drought, will necessarily be unable to make a good show of the cereals, but other portions can do so, and, under the circumstances, they should not fail to do it.

To the Apprentices of California.

The board of managers of the Eighth Industrial Exhibition, desiring to encourage and advance

the interests of the Mechanical Apprentices, will, at the incoming Exhibition, award special prizes for the best specimens of drawing, designs, models, or mechanical workmanship, and space will be allotted to this department. The class and value of premiums, to be awarded on the merit of the exhibit, by a Committee appointed by the Board of Managers.

Each exhibit must have attached the name and age and residence of exhibitor; and an application to exhibit in this Department must be accompanied with a voucher from the employer, that the exhibit is the sole work of the exhibitor.

Information will be furnished and applications for space may be made to J. H. Gilmore, Special Agent Eighth Industrial Exhibition at the Mechanics Institute, 27 Post street, San Francisco.

MECHANICAL PROGRESS.

SCREW-BOLT MAKING IN CHICAGO.—The *Railway Review*, for June 15th, describes the establishment of the Union Screw-Bolt Company. We quote in reference to the patented machine for threading the blanks:—"Two flat steel disks of the same size (varying in size and strength with the work to be done, but generally about five inches in diameter) revolve rapidly in opposite directions in a vertical plane; and, when idle, run far enough apart to receive between their faces the rod to be threaded. These disks take the place of the "plates" in all other contrivances. They have sharply defined thread dies raised from their planes near their outer edges, and facing each other. These raised threads are not more than four or five in number, and are just as far apart as the desired thread is to be. They form a spiral, clean-cut, raised edge, commencing inwards a little ways from the extreme outer edge and traveling outward (more or less rapidly, according to the number of threads to the inch), finally terminating at the periphery. Between these revolving disks the blank rod is introduced, point foremost, as far as the thread is desired to extend up the rod, and is left free to turn with the disks, which are then, by means of a powerful lever, brought as near together as the rod allows, and made to hear upon opposite sides of it. The rod at once takes a rapid revolving motion from them, and commences traveling outward. When the point is reached it drops on to an apron a perfectly threaded bolt. With this machine a boy will make on an average 8,000 three-quarter inch bolts per day. The rod may be wrought hot or cold, though when over three-fourths or seven-eighths of an inch in diameter, it is preferable to heat it." It will be seen that the thread is not cut, but impressed; thus toughening, instead of weakening, the rod.

BESSEMER METAL MANUFACTURE IN THE UNITED STATES.—"There are now nine establishments in the United States which will give their quota of Bessemer metal rails to supply the constantly increasing needs of our railways. Of these one is located at Troy, N. Y.; four in Pennsylvania, respectively at Harrisburg, Lewistown, Bethlehem, and Johnstown; two in Chicago, Ill., and another at Joliet, in the same State; and one at Cleveland, Ohio. Only three of these were running in 1870. They turned out about fifty thousand tons of steel rails. It is hoped that the whole number being in operation the present year will give a production fifty per cent. greater than that of last; while there are those sanguine enough to predict that, should present inducements to the manufacture continue, the year 1872 will witness a yield of one hundred and fifty thousand tons. Already ten millions of dollars have been invested in American Bessemer works, and the result of the increased product is seen in the reduction of the price from two hundred dollars per ton in 1862 to one hundred and five dollars per ton in 1871."—*Artisan*.

ELECTRO-MAGNETIC BOILER-SCALE PREVENTOR.—We mentioned this some time since. It seems to be a success. The *Railroad Gazette* says: "The result of a lengthy trial on their locomotives and steam ferry boilers on the Mississippi River induced the Chicago, Burlington & Quincy Railroad to purchase the patent, and this railway is now understood to have the batteries applied to upwards of sixty engines. An expert is stationed at Aurora to examine the engines and keep the batteries in order. It is claimed that by its use the interior surface of the boiler is even cleaner and less oxidized than when it was new; that a boiler will evaporate nearly or quite its maximum of 7 lbs. of water to one pound of coal, never going down to the average of 4 lbs. of water to 1 of fuel; that the saving in fuel and consequent increase of power being thus large, the vitality of fiber of the iron in the flues and fire-boxes is never destroyed by the intense heat necessary to penetrate the incrustations of foul boilers. A sheet from the most exposed locality, where it had been most fully tested, was taken out at Aurora and pronounced to be even tougher and more ductile than when it was new. A piece from a boiler which had no battery on it was as brittle as a china dish."

NEW SAFETY VALVE.—A correspondent of the *Railway Times*, writes: "A new and ingenious safety-valve arrangement has been brought out by an inventor at Wor-

cester, Mass. The valve requires neither spring nor lever, and no weight except its own for its operation. The valve, some three inches diameter and one and a quarter thick, is inclosed in a case, in which it works up and down easily yet snugly; it has a range of three-eighths to half an inch—its diameter and range must vary, of course, according to the capacity of the boiler; the lower face is flat, and its upper face slightly concave, and it has a small hole through its center. The bottom of the cup or case upon which it rests has a central hole for the escape of steam from the boiler; around this central hole, and concentric with it, are several segmental holes, through which the steam passes to the atmosphere. The valve covers all of these holes with a steam-tight fit. The reader will perceive that, if there were no other opening into the valve-case than the central and segmental ones just named, there could be no action to the valve, for the steam from the boiler would pass through the small hole in the valve into the space above it, and of course would press the valve upon its seat with a force in proportion to the aggregate area of the segmental holes. To relieve the valve of this pressure, a small auxiliary valve is fitted in the cover of the case, or perhaps one-fourth of a superficial inch area, which is adjustable to any pressure required. When this valve opens, the larger valve is relieved of its top pressure, and rises at once and relieves the boiler."

COMPOSITE SHIPS.—The *Engineering and Mining Journal* prints an article from an English journal upon the advantages possessed by composite ships over those of wood or iron alone, and appends the following remarks:—"The galvanic action which took place when other than copper bolts were employed to fasten the copper sheathing and the wooden planking to the iron frames, has necessitated the abandonment, to a great extent, of the composite principle. The cost of the copper bolts is excessive, and those of galvanized iron are not suited to the purpose. * * The apparent cheapness and strength of iron vessels ruined the shipbuilding interests of this country. Iron ships can be built more cheaply in England than here. American shipbuilding must be based upon the superiority and cheapness of the native timber for years to come. Our ship-yards are to a great extent idle because it is supposed that iron is superior to wood as a shipbuilding material; but let some Yankee find a cheap and reliable substitute for copper bolts, and we venture to predict that the composite shipbuilders of this country will, ere long, be able to compete successfully with the finest ship-yards of the Clyde or Tyne."

TORPEDOES IN OIL WELLS.—The Roberts patent for increasing the productiveness of oil wells, by the use of torpedoes has just been sustained in the United States Circuit Court, at Pittsburgh, Pa. The patent consists in sinking to the bottom of the well a water-tight flask, containing explosive material, and so constructed that its contents may be ignited by means of electricity. The result is in most cases to greatly increase the flow of oil. The theory is that the oil is in seams or crevices in the rock, of various sizes and irregularly located; and that a well sunk through the oil-bearing rock may not touch any of them, and thus may obtain no oil, though it may pass very near the crevices. The torpedo breaks through obstructions and permits the oil to reach the well.

RAILS OF PRIME QUALITY.—The Director of the Canada Grand Trunk Railway has placed on exhibition in the rooms of the Board of Trade at Montreal, samples of steel and iron used in manufacturing the rails for the road. Among these samples is an iron rail which was twisted cold thirteen times before fracturing, and was formed into the shape of a spiral spring. There are also plates bent by hammering cold across the grain, a double-headed steel rail, bent cold and elongated twenty-five per cent. An axle bent cold in a testing machine forms a complete knot without any fracture whatever.

CIRCULAR SAWS FOR STONE CUTTING.—J. E. Emerson, the inventor of the movable saw-teeth, has patented "the use of adjustable, reversible, and interchangeable chisels or cutters for sawing stone; also the use of adjustable diamond or carbon holders, the use of diamonds or carbons alternated with the chisels, and the manner of fastening them in the saw-plate."

SCIENTIFIC PROGRESS.

ANIMAL AND VEGETABLE KINGDOMS CONTINUOUS.—The following is from Prof. Wyville Thompson's lecture at Edinburgh University: "A plant cannot assimilate pure carbon, or hydrogen, or nitrogen; it seems that it can assimilate no elementary substance except oxygen, unless it be presented to it in the nascent condition. An animal stands in precisely the same relation to the binary compounds, carbonic acid, water and ammonia. However abundantly, therefore, it might be supplied with these binary compounds which actually contain all the elements necessary for its sustenance, it would surely die of inanition. In order to be capable of affording nourishment to the animal kingdom, these substances must be elaborated to the condition of ternary and quaternary compounds, and this can only be done in the cells of plants. This, then, is the broad and practical distinction between the vegetable and the animal kingdoms. Plants have the power of absorbing, modifying, and organizing inorganic substances, while animals are entirely dependent upon the organic substances thus prepared for their support. Taken in this sense, the distinction between the two kingdoms is most marked, and of the highest practical value; but when we set aside this one peculiar property, which is possessed only by some plants, and only by certain parts of those plants at certain periods of their life, and especially when we observe certain minute forms, of low organization, on the verge of either kingdom, it becomes absolutely impossible to assign any definite distinctive character. The character which is, perhaps, most palpable and universal, is that a mass of vegetable protoplasm is at some time during its existence, inclosed in a cell-wall, which is composed of cellulose, or some very nearly allied ternary compound. Animal protoplasm is rarely, if ever, confined in this way; that is to say, in nucleated cells, with cellulose walls, which are found in all plants, and are not found in the animal kingdom. * * *

Now, although the power which plants possess of fixing carbon and combining it with the elements of water, is the character which practically distinguishes the Vegetable from the Animal kingdom, I have already shown that we cannot regard this as by any means a universal test. In this respect broomrapes and dodders are animals. When we pass down by any path we choose, either through animals or plants, we come equally to a great series of very simple forms—mere little masses of protoplasm with a nucleus. Some of these contain peculiarly formed masses of bright coloring matter, green, scarlet, or yellow, and with the possession of such pigment we usually associate the power of decomposing carbonic acid. Many of these bodies have, however, no coloring matter at all, except what is derived from their food. A large number of these simple forms are enclosed in a wall of cellulose, but very many of them are naked or merely covered with a pellicle of firmer protoplasm; while some, such as the plasmodia of the myxogastrea fungi are, for some part of their lives, enclosed in a cellulose wall, and for another part, naked. Going still lower, we have Haeckel's Monera, differing from the others merely in the absence of a nucleus and the total want of differentiation of any part. Even these last are sometimes coloured, and from their chemical reactions it seems very likely that they possess some low form of the peculiar vegetable power. Now, the question is, whether all these considerations lead in any way in the direction of establishing a separate kingdom for these simple beings. I think decidedly not, but it seems to me that they prove almost to demonstration that organic nature must be taken as one whole, that the Animal and Vegetable kingdoms are absolutely continuous, and that a tree flinging its green flags into the sunshine and feeding on the winds of heaven, is essentially nothing more than a vast colony of a protozoon, comparable to a gigantic nummulate, only holding a cellulose instead of a calcareous shell, and developing a special secretion in special organs for the purpose of enabling it to do so."

THE NITRO-CHROMIO BATTERY FLUID.—The *Journal of the Franklin Institute* for June gives a letter from the Supt. of the New York Fire Alarm Telegraph to W. G. Levison, a part of which we copy:—"Ten days since, I put up your battery, viz., filled up the porous cup around the coke with dichromate of potash, filling up with

nitric acid, then in the glass jar a solution of sulphuric acid 1 to 10. At the same time I put up the same number of cups (five) of the electro-poison battery. Testing each battery through galvanometer with 38 miles of resistance, I found that each marked 40°. I then placed 5 cups of your battery in service (working two machines,) and two cups short circuited, with six inches of wire. These remained so for 20 hours; after which the 3 cups showed 28° and the 2 cups 10° through same resistance. I then for the same length of time, placed the electro-poison battery, 3 cups in service and 2 short circuited, and my tests then showed the elec. 4 cups to be 23° and the two cups dead. The new battery, on being tested at this time, showed 3 cups thirty degrees, 2 cups fifteen degrees. I have this afternoon found the 5 cups electro-poison dead, while the new battery is in such good condition that I have put the 3 cups in service again, and the two cups on short circuit."

STRING VIBRATIONS MADE VISIBLE.—In a recent lecture on "Sound," at the Royal Institution, Prof. Tyndall illustrated different rates of vibration by means of different tuning-forks with strings attached. He made the vibrations visible to the audience, —says the *Mechanics' Magazine*,—"by darkening the theatre, and illuminating the strings by means of the electric light, so that they threw long shadows on the screen, and when they were made to vibrate, shadow segments of a gauze-like appearance were seen. In another experiment he showed the segments in an exceedingly beautiful manner. A fine platinum wire, several feet long, was attached to one end of one of the tuning forks, and then made red hot by means of a current of electricity passed through it from a forty-cell Grove's battery. When the fork was then made to vibrate, the red hot wire was thrown into vibrating segments, and wherever it vibrated most it was of course most cooled by the air, so there became dark—lost all its redness. But at the nodal points it remained red hot. Thus by its own vibrations it was divided into red hot and dark sections. While thus vibrating, the red hot nodal points were hotter than while the whole string was at rest, because the cooling of the other portions of the wire increased their electrical conductivity, and thus a more powerful current acted on the points of no motion."

CONSERVATION OF FORCE.—In a communication to *Nature*, N. A. Nicholson says: "What, then, does the Conservation of Force doctrine amount to in plain English? It amounts to the simple admission that the tendency to move is a property of matter inseparable from it and coexistent with it, and it is this tendency to move which is the cause of all the changes which we observe around us. * * * Prof. Ansted says: "The first and greatest lesson that the students of Geography and Geology must learn is that motion is not limited to masses of bodies, but is actually taking place always and under all circumstances within all masses, whether solid, liquid, or gaseous, and often without approaching the surface." The Universe is one mighty system of changes, and these changes arise from the inseparable connection between matter and motion; and Dr. Benze Jones says truly, "The question between materialism and spiritualism is in fact only a question between ponderable and imponderable materialism."

HERSCHEL THE FATHER OF PHOTOGRAPHY. The author of a biographical sketch, in *Nature*, of John Herschel, who has just died at the age of 79, says that indirectly he may be regarded as the father of photography, inasmuch as he announced in 1819 the property of the hyposulphite of soda to "dissolve newly precipitated chloride of silver almost as readily as sugar." "To this property alone it was owing that, twenty years after, Daguerre was enabled to practically realize the hopes of Davy and Wedgwood, that the photographic pictures they had already obtained might one day be fixed and preserved."

DETECTING ARTIFICIALLY COLORED WINES.—Shipson proposes the spectroscopic for this purpose. He asserts that naturally colored wines give no definite absorption bands, but only a very general absorption, greatest toward the violet; whereas, Brazil wood and so on, produce very distinct absorption bands. He adds water if the wine is too dark. The least sign of an absorption band he deems suspicious. This method may prove of great value.—*Journal Franklin Institute*, June.

CORRESPONDENCE.

Right and Left.

EDITORS PRESS:—In your issue of June 3d is a communication over the signature of "Curiosity," in which the writer attempts to refute my argument on this question, by giving the result of several experiments made by himself and a friend, to ascertain whether a person would walk more to the right than to the left, and he assumes that the lecturer was entirely right in his conclusions. At the same time, the writer does not wish his experiments "to be regarded as conclusive, but only as strong evidence."

I can give "Curiosity" three good and sufficient reasons why his experiments ought not to be considered as conclusive, and why they furnish no evidence in support of the lecturer's theory.

First. His experiments were made with the eyes shut; and the natural tendency of a person groping in the dark is to rely on the protection of his "good right arm" as a fender from accidents by falling over obstructions or running against objects. The mind and body of the blindfolded person would therefore follow the leading of the dexter member aforesaid.

Second. The writer went out prepared to make the experiments in the interest of his theory of the matter, and, so far as his action of the matter is concerned, he is too swift a witness. To be sure, if a man wishes to go to the right in preference to the left, he can always do so, provided he is not in the hands of a policeman, who wishes him to go the other way.

Third. The distance traveled to the tree or post designated must have been comparatively short—too short to afford conclusive evidence.

An Experiment.

But I will offer "Curiosity" an experiment which he can make with his eyes open, and which will not only be conclusive, but which will afford him evidence that he can see with "half an eye."

Let him be set down in the center of a piece of woodland, in a locality with which he is unacquainted; and let the distance from his place of landing to the nearest open country be five or six miles, and no path or traveled road existing for him to follow. Having provided himself with a pocket compass he can take his course in any direction to find the open country; but he must not again consult the instrument until he emerges from the wood. On reaching the open place, and before turning to the right or left, let him examine the compass and he will find that he has diverged several points to the left of the course he had marked out for himself when he started.

The lecturer referred to in this discussion was correct in his premise, but wrong in his deduction. The right side, or the limbs carrying it, will show a tendency to outwalk the left, and I have no doubt of their ability to do so. But that is the very reason why the body should be carried more to the left in walking long distances. If a curve is described in any manner—and it seems evident that there is one—is it not more reasonable to suppose that the stronger and more enduring right limbs should take the outer and longer half circumference of the semicircle, while the weaker left leg and foot move upon the inner and shorter curve of the same?

How it is in Training Horses.

Several facts in the training of horses support this view. The principal acts in circus-riding are performed toward the left, which place the left side of the horse on the inside or shorter curve of the circumference of the ring. Race courses are laid out from the grand stand with the same purpose. Who does not know that there is always a contest for the "inside track," which, of course, is the shortest? And the weaker horse has a better chance of winning on that side than the stronger on the outside, because his left feet describe a circle of less dimensions than the left feet of his competitor. The "nigh horses," in a team of any number, are those placed on the same side as the driver, namely, the right side; and are always the stronger animals of each span. They are so placed that they may be within easier reach of his whip and his voice, and that

he may be the better able to urge them to use their strength in keeping the vehicle on a straight course; whereas, the tendency would be to sheer off to the left if the horses were not so placed. And, finally, horse-powers in the field, with revolving horizontal arms to each of which is attached a draft animal, are made to move to the left, so that the right limbs, being able to "outwalk the left," as said the lecturer, shall take the outside circumference of the circle traveled, being the longest in distance, and requiring more endurance and strength than the "inside track."

The force of the foregoing examples is in their evident confirmation of the position taken in my first article on this subject, namely, that the left leg and foot constitute the pivot on which the body swings in a state of comparative rest, while the right leg and foot perform the heavy work of locomotion. A pivot suggests revolving motion; and who ever saw a mechanical contrivance, even for perpetual motion, the moving parts of which revolved away from their pivotal center? From such a centrifugal catastrophe the Lord preserve the members of the human family, and all other families upon which they depend for subsistence!

Nature Bears Out this Reasoning.

All nature bears out the reasoning of the preceding argument. The right side of any natural object is always the largest and the heaviest. It is so with an orange, an apple, a pear, even a mustard seed. The skin and other portions of the right side of these will always be found thickest and toughest. The right side of a tree is the heaviest limbed, and the most umbrageous. The great globe itself, the earth which we inhabit, taking the north pole as its head, has more land out of water on its right or eastern hemisphere. And, what is very curious, if we take the east as the head, and the northern and southern hemispheres as the right and left limbs, we shall find more land on the northern or right side of the earth.

And in man, it is not only the right hand, arm, leg, and foot which are the largest and strongest, but the entire bodily economy also. The right eye, the right half of the face, the viscera of the right side—as the lung, liver, kidney, etc.—are also the largest. The circulation of the blood is toward the right side, as the one having the most work to do.

It must now be plain to your correspondent, as it is to me, that if the right limbs in "outwalking the left" cause the body to make a detour to the right, as the lecturer said, such movement must place the right side on the inner or shorter side of a curve, and give the left limbs more work to do than they are constituted to perform. He will at once see that this is very unphilosophical and improbable. It would make the right side the pivotal or resting one, and the left the energetic, strong and active working part of the body, which every one knows it is not.

PHILO SOPHUS.

The Hoopa Valley Reservation.

How Grant's Indian Policy Works.

EDS. PRESS:—Thinking that a few words from this distant locality might prove interesting to the readers of your excellent journal, I have concluded to drop you a few lines from Hoopa Valley.

This locality is about 50 miles above the mouth of the Klamath river, and about 10 miles above its junction with the Trinity. It is a beautiful valley about six miles in length, and averaging three-fourths of a mile in width. The Trinity river winds its way, from side to side, through its entire length. Nature seemingly could not have produced a more beautiful or appropriate place for a reservation, locked in, as it is, by rough, precipitous and almost impassible mountains.

The curse of Indian reservations, generally, is their easy communication with the outside world, where evil-disposed persons, having fear of neither God nor man in their hearts, carry on an illicit traffic in intoxicating liquors with the Indians. Here we are entirely free from this source of annoyance;—a drunken Indian on this reservation being an object that I have never witnessed.

Camp Garton, garrisoned by two companies of U. S. infantry and commanded by Col. Nelson, is situated in the center of the valley.

There are about 750 Indians on the reservation, who are at present peaceable and quiet; though it was only a few years since that they were the terror of Hm-

holdt, Klamath and Trinity counties. Four years since they killed the agent, Mr. Stockton.

How the New Policy Works.

President Grant, in pursuance of his policy of christianizing and civilizing the aborigines of the country, commissioned Rev. D. H. Lowry, of the California Conference of the Methodist Episcopal Church, as agent of this reservation, and under his administration a complete change has been wrought. Formerly the employes and whites generally were in the habit of cohabiting indiscriminately with Indian women, and many half-breed children is the result of this crying evil. All the employes at present are christian men, with their wives and children, who have left comfortable homes with the desire and hope of improving the condition of these Indians. Several of the ladies have started schools, and it is interesting to witness the eagerness with which they crowd around their teachers. A building is now being prepared, for a school-house, and will be finished in a few days, when a permanent day school will be established. Probably within the next twelve months, four or five schoolhouses will be erected and as many schools in successful occupation.

Agricultural Prospects.

While the denizens of the valleys are suffering from the drouth, we in the mountains are having an abundance of rain. There are about 700 acres in hay and grain, all of which look well and give promise of an abundant harvest. The soil is of a clayey nature and has been injured by being plowed too wet; and should we be visited with a drouth within the next year or two, this ruinous system of plowing will tell.

Another Lesson in Thorough Culture.

The strongest proof of the advantages of summer fallowing I have ever witnessed, is a field of wheat containing about 40 acres. This piece of grain is a strip in the center of a large field. It was plowed last year for corn, but not planted. This spring it was sown to wheat, which is headed out and looks as well as any grain I have ever seen; while that on each side of it is not yet headed out and does not look nearly so well, and I presume will not yield more than two-thirds as much. When harvested I will report the difference in yield.

Acting on the principle that "all work and no play makes Jack a dull boy," we concluded to have a "May Day" picnic. The officers of the fort and their wives joined us, and we spread our lunch on the side of a huge old mountain overlooking the valley, and enjoyed ourselves for an hour or two, when we returned to our home, all feeling better for our little frolic.

MORE ANON.

Klamath County, May 28th.

Blackberry Wine.

Don't can, or dry, or eat up all your blackberries. Save some of them for wine, of which a most excellent article can be made—good alike for the table and kitchen, and highly valuable for the sick room. In some classes of diseases, especially affections of the bowels, a first-class article of blackberry wine is more valuable than the most costly foreign wine, even when made from the pure juice of the grape.

One great reason why blackberry wine is not more appreciated is because it is so seldom properly made; and yet there is no difficulty in making a good article, and the process is very simple. A writer in the *Southern Planter* says he has made it for several years past, and never, in a single instance, failed to produce a good article by following the unjoined directions:—

Gather the berries when perfectly ripe, and in such a manner as to avoid bruising. Empty them, as fast as gathered, into a tub until you have a quantity sufficient to fill, with juice, the cask in which you propose to make the wine.

Have the utensils, etc., required in the process, all ready before you pick—or at least before you mash your berries. Everything must be scrupulously clean. You want a keg, a beater of seasoned hard wood, a pail, a large bowl, treen or other vessel into which to strain your juice, a good thick strainer—two or three folds of fine white flannel is the best material—a couple of yards of osnaburghs, a spare tub or a bucket or two, and a tub of soft spring water. Everything must be perfectly clean and free from dirt or odor of any kind.

Crush the berries thoroughly with the heater, and then after straining the liquor, which runs freely from the pulp through the folded flannel, empty it into the cask, measuring it as you put it in. When the juice has been all drained from the pulp, you proceed to press the pulp dry. If the quantity is large, this had best be done by a regular press, but if only a few gallons are wanted, the osnaburgh answers very well. Stretch out the osnaburgh, put a gallon or a gallon and a half of the pulp into the center, fold the cloth over it on each side, and let a strong hand at either end twist the cloth with all their strength; when the juice is well pressed out, remove and lay aside the cake of pomace, and put in more pulp. This process is apparently rough, but is both rapid and effectual. The juice so extracted is strained and measured into the cask as before mentioned. The flannel strainer and the osnaburgh may need rinsing occasionally during the work.

When all the pulp is pressed, put the hard cakes of pomace taken from the cloth into a tub, and pour upon them a little more soft spring water than you have clear juice; break up the balls and wash them thoroughly in the water, so as to obtain all the juice left in the mass, and then strain it clear; measure out as many gallons of this water as you have of clear juice, say five gallons of the water to five gallons of the juice, dissolve in each gallon of the water six pounds of sugar, (brown or white as you want a common or first-rate wine,) and when thoroughly dissolved, add the juice, (first passing it again through the strainer), and mix them. Then rinse out your cask, put it where it can stand undisturbed in a cellar; fill it perfectly full of the mixture, and lay a cloth loosely over the bung hole. In two or three days fermentation will commence, and the impurities run over at the bung; look at it every day, and if it does not run over, with some of the mixture which you have reserved in another vessel, fill it up to the bung. In about three weeks fermentation will have ceased, and the wine be still; fill it again, drive in the bung tight, nail a tin over it, and let it remain undisturbed until the following November, or what is better, March. Thendraw it off, without shaking the cask, put it into bottles or demijohns, cork tightly and seal over.

For a ten gallon cask, you will need about 4½ gallons of juice, 4½ gallons of water and 26 pounds of sugar, and in the same proportion, for larger or smaller quantities. Some persons add spirit to the wine, but instead of doing good, it is only an injury.

Another process is, after pouring in the mixture for a ten gallon cask, to beat up the whites of two or three eggs into a froth, put them into the cask, and with a long stick mix them thoroughly with the wine. In five or six days, draw the now clarified wine off by a spigot and without shaking the cask at all, into a clean cask, bung up and tin, to be drawn off into glass in November or March.

The more carefully your juice is strained, the better the quality of your sugar and the more scrupulously clean your utensils, particularly your kegs are, the purer and better will be your wine.

The best quality when you gather your own fruit, and make it yourself, costs you only the price of the white sugar, and when bottled will cost you in money about twelve and a half cents a bottle.

DOES BLACK WALNUT DESTROY FRUIT TREES?

Mr. O. Snowberger, of Quincy, Pa., writes to the Farmers' Club, in New York as follows:—"I feel satisfied that I have seen three apple trees destroyed by black walnut, and I believe they destroy grape vines. I judge it is the water dropping off the walnut leaves that does the work." Have any of our readers met with any similar experience? If what is stated by Mr. Snowberger, is a fact, it is one which should be generally known, as the large number of people in this State who are now planting black walnut, would, under such circumstances, take special care to place them in localities where no such damage could occur.

BENEFIT OTHERS AND PROFIT YOURSELF.

Ben Holladay is the leading spirit and Joseph S. Wilson the President of the Oregon Land Company, which is forwarding scores of good Western farmers and German immigrants to our moister neighbor, where stock lands range from 50 cts. to \$1.50, and average farm lands from \$2.50 to \$5 out of Willamette, and \$10 in Willamette valley.

MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ANOTHER STRIKE.—*Chronicle*, June 17: The Schnecktady Co. has run into another body of ore deposit in the middle drift, and 10 or 12 feet more will reach the main body. In the lower tunnel some more good ore has been found. This will furnish plenty of ore for milling.

IN ORDER.—The Exchequer mill is being placed in order for active operations.

BARNES' CLAIM.—Advices from Supt. Barnes are that he will leave within a few days for Hope valley to resume work on his claim.

TARSHISH.—*Miner*, 17th: During the past two weeks some important discoveries have been made in the Schnecktady. It is said ground will be broken for the foundation of reduction works about the first of July.

The furnace of the Monitor and N. W. mill is going up rapidly, the wood work far advanced toward completion, and the flume being thoroughly overhauled and strengthened. Over 50,000 pounds of machinery is being delivered to-day by teams from Reno. The No. 3 main tunnel is expected to start up with full gang next week.

AMADOR COUNTY.

The strike goes on. Troops are on the ground, and the pumps were all started on the 27th. The general feeling of the people in the county is against the strikers; for business of all kinds is at a standstill in consequence of their action. In any case, the members of the "League" will be set aside, and other hands will be employed in the mines. So much for "Leagues" which undertake to coerce outsiders.

KENNEDY.—*Ledger*, 24th: This mine is steadily improving, and at present they have a well defined vein six feet in width. The Co., have commenced another "sinking," intending to go down one hundred feet deeper and thus secure a sufficiency of rock to keep their mill running all winter.

SHUT DOWN.—Work on the Coney mine has been stopped for the present, the owners preferring to remain idle until the difficulties in this county come to an end.

CALAVERAS COUNTY.

GOLD.—*Chronicle*, 24th: The Palomo mine in Lower Rich Gulch is giving out \$4,000 per week as usual. When the shaft is sunk two hundred feet deeper, and an additional battery of forty stamps put in motion, we expect to be able to place the weekly shipments at \$20,000.

STRUCK IT.—The Union Shaft Co. in Corral Flat, have struck rich gravel. Ten dollars to the pan have been obtained.

NEW MILL.—The mill on the Whisky Slide mine, Hardigan, Laden & Co. is nearly completed. The battery is to be of ten stamps.

BIG MINE. H. H. Sheldon, Supt., of the Big mine near Railroad Flat, informs us that the lead is developing favorably. Since the new company commenced operations the mine has paid a considerable amount above expenses. Machinery is to be erected as soon as practicable.

GOOD PROSPECT.—A week or two since we stated that the mine belonging to Matthews, Foster & Co., near Whisky Slide, had been conditionally sold, and that the parties purchasing had a quantity of rock for crushing. Since then the quartz has been worked, yielding \$17 per ton. The rock was unassorted. There is quartz in sight, however, that will pay \$150 per ton.

WORK COMMENCED.—Work has been commenced on the old Foot & Thompson quartz lead, near Rich Gulch Flat. Eight men are employed, and the force will be increased. The mine was extensively worked years ago, but lately conflicting titles to the lead have prevented. We understand that the agent of a San Francisco company has effected an arrangement with the various parties in accordance with which he is to prospect the lead for six months with the privilege of purchasing.

ELDORADO COUNTY.

CAPT. LEE AROUND.—A correspondent of the Placerville *Democrat* writing from Georgetown on the 13th inst. says: The celebrated Woodside mine, which has been lying idle for several years, was bonded during the past week by Capt. S. W. Lee and A. Muir, Esq., of San Francisco, who will in a few days commence operations. The Woodside ledge is that in

which, a few years since, a pocket was said to have been struck so rich in solid gold as to compel the owners to have it cut up in pieces with chisels.

INYO COUNTY.

CERRO GORDO.—Cor. of *Independent*, June 17th: The furnace property of Mr. V. Beaudry, lately destroyed by fire, is being reconstructed as rapidly as material can be procured. The works of M. W. Belshaw & Co. are in constant operation.

GOLD MOUNTAIN DISTRICT.—Palmetto Cor. of same: Messrs. Shaw & Ruth made \$60 in four days with their mule arastra.

GREEN MOUNTAIN.—Farthing, Gallagher & Co. have commenced work on the "Green Emigrant" lode. They have thoroughly prospected their claim, and find the rock to assay firmly from \$700 to \$1,200 per ton.

Silver Peak is dead. Palmetto is worse, being abandoned; although the Champion, in the last 42 days' run, yielded \$83,000, and the New York ledge, seven feet wide at depth of 60 feet, assays \$450 per ton.

IREMS.—The Eclipse Co. is building a smelting furnace. June 12th there were shipped from the mill of Hiskey & Walker, at Deep Spring Valley, two bars of bullion, weighing 320½ ounces, valued at \$280.

MARIPOSA COUNTY.

The *Gazette* of June 23d says that Dau. Jones, lessee of the Oakes & Reese mine, Hunter's Valley, is taking out some very rich rock, some of which we saw. Most of the rock will average \$50 per ton. About 30 men are employed about the mine and mill.

The Washington mine and mill, near Hornitos, are in full operation, taking out good rock. The company are sinking a new shaft.

NEVADA COUNTY.

WEBSTER CO.—*Grass Valley Union*, 20th: The Company give notice of their intention to remove their principal place of business from Grass Valley to San Francisco. Also increasing the capital stock to \$500,000.

DARTMOUTH.—The company have a ten-stamp mill, purchased from the Dromedary Co., on the ground ready to be put up, and a tramway about completed for running out the gravel to the mill through a tunnel they have commenced into Alta Hill.

GLENBROOK CLAIMS.—Same of 21st: The race track claims worked for some years by Shaw & Co., have been purchased by Peter Ismert, who will continue to work them by hydraulic.

MANHATTAN.—Same of 25th: A crushing of 37 loads of rock was yesterday made at Ben McCauley's mill; proceeds \$1,260 or \$37 a load. The sulphurets saved are rich, and will put the yield at about \$40 a load.

NEW YORK HILL MINE.—Same of 27th: The machinery has been put in order, smoke and steam can be seen at the mine, and the pumps started yesterday morning. The mine has lately changed hands. The water will be pumped out as rapidly as possible, repairs made, and crushing commenced.

SCHOOLBOX LEDGE.—*Transcript* June 22: The ledge, at Gold Flat, has been purchased by McAuslin & Co., who have run a tunnel two hundred feet, and on Saturday struck the ledge a foot and a half thick and filled with rich sulphurets and galena.

KEYSTONE GRAVEL CO.—Same of 24th: This company have purchased four or five claims on Montezuma Hill, which they have consolidated. The gravel prospects well 200 feet above the bed-rock, and as high as \$90 to the pan has been obtained from the gravel. The new Co. propose to open the channel by two bed-rock tunnels, one giving outlet into Shady Creek, and the other into the Ynba.

PENNSYLVANIA MINE.—This mine has just been sold to a San Francisco company for \$45,000. A year ago this was one of the "played out" mines. It had "husted" two companies, leaving the last owners in debt \$17,000. J. H. Helm then took it. A new level was opened and a well defined ledge of 3½ feet struck. The rock has for several months past yielded an average of \$40 per ton—and with a four stamp mill the clear profit has been \$4,000 per month.

HYDRAULIC MINES.—*Appeal*, 23d: The mines near San Juan are yielding handsome returns. The America has yielded \$2,000,000 since it was opened. They are now running a tunnel from the Yuba river, two miles to get at the bed-rock of the old channel.

CEMENT MILLS.—The cement mills around French Corral work to a charm, and the owners are realizing large profits from their investments.

PLACER COUNTY.

BIG MONEY.—*Stars and Stripes*, June 22d: Yule's claims, above Last Chance, yielded

114 ounces worth over \$2,100 for the six days ending with Friday June 16th. Weske's claim, at Turkey Hill, above Michigan Bluff, yielded 514½ ounces for the week ending June 17th, for which Stroebel of the Bluff paid him \$9,004. This gives Yule & Co. over \$4,100 and Weske over \$15,000 of dividends for three weeks last past.

GREEN MINE.—*Grass Valley Union*, 25th: A gentlemen from Auburn informs us that a two weeks' run of the mill of 4 stamps has resulted in \$50,000 in gold. The clean-up is almost unprecedented in the State.

SIERRA COUNTY.

GOOD HOPE MINE.—*Messenger*, 24th: The purchaser, Mr. Curtis, has built a wagon road to the mine at an expense of over \$500; has sunk a shaft and will be taking out rock in a few days. The old Wheeler mill, four stamps, has been leased and put in order.

KANAKA.—Parties are here from San Francisco looking into the affairs of the Kanaka Mine with a view to commencing work.

WATER.—Water has failed in most of the mining camps of this county. There is just about enough left to clean up with.

RIVER MINING.—*Age*, 24th: A Chinese company is building a wing-dam below the north end of Durgan bridge, so as to turn the river against the south bank. They expect big pay in the bed of the main channel.

Ware & Donahue, on Rattlesnake, near Clark's ravine, a few days since found a nugget weighing six ounces.

TRINITY COUNTY.

DRIVING.—*Journal*, 24th: J. C. Mason & Co. are driving ahead with the tunnel to open their claims on Union Hill. They are in 330 feet, running day and night, and making twenty feet a week.

TRINITY RIVER.—Cor. of same: Hager & Haas have finished cleaning up and have done well. Weise & Volmers' claim is a good one. The Reno Flat claim still pays. Dacy Bros. are cleaning up, with favorable prospects. Some of the claims were forced to quit work very early on account of the limited supply of water.

TUOLUMNE COUNTY.

IREMS.—*Sonora Democrat*, 24th: The Knox & Boyle claim near Poverty Hill, last week yielded \$2,200 for seventy-eight tons of rock crushed. Mr. Sherwood who has been prospecting the Spring Gulch claim, north fork of the Tuolumne, has contracted for the erection of a ten stamp mill.

Nevada.

ELY DISTRICT.

BULLION.—*Record*, June 22d: Wells, Fargo & Co. shipped, on June 14th and 17th, by the way of Salt Lake, bullion valued at \$21,309.91.

CRESCENT DISTRICT.—At a meeting of miners held at Crescent (near Hiko), June 10th, a new district was formed out of a portion of the old Pahranaagat District. New life appears to have been infused into mining matters in that vicinity.

STARTED UP.—Crescent mill, long idle, has started up again with a prospect of running steadily. The mill is at present running on custom rock of high grade from Tempiute and Crescent.

A correspondent of the *Enterprise* writes from Pioche, June 17th: "It is true we ship a great deal of bullion, but there are too many men here to be profitably employed at present, or rather there are not enough mines sufficiently developed to give everybody work. General Connor is bringing water into town and perhaps we will then have one or two mills erected. This would obviate bauling the ore twelve miles, which is now done."

EUREKA DISTRICT.

PHENIX CO.—*Sentinel*, June 20th: For some days past the Co. has been getting out \$370-bullion. Last week a purchase was made of the Jenny Lynch mine for the purpose of getting the necessary lead to run the richer ores. Yesterday, at San Francisco, Judge Lake sold the Otho mine, that he purchased of McGee, Stont and Thompson, to the Phoenix Co., and at the same time, the Supt. leased the Jackson furnaces, and is already having ore and coal delivered. To-night they will commence smelting.

BULLION SHIPPED.—From the 1st of May to the 15th of June, there were shipped to Palisade, by the fast freight line, 462,000 pounds of bullion. The other lines have been shipping at the same time. During the time the furnaces have been accumulating bullion and have a large quantity now on hand.

THE NEW STRIKE.—Same of 21st: The explorations in the Richmond have been continued, and now, at a depth of 74 feet in an incline, and at the end of a drift 118

feet long, the ore is in larger quantity than in any mine in the district. Up to this time, neither top, bottom nor sides have been discovered, but it seems an immense deposit of the richest ore.

Mr. Bragg, of San Francisco, has purchased the one-half interest of Moses Wilson in the Roslin mines and furnace for \$40,000 gold coin.

BUTTERCUP.—Same of 24th: One of the furnaces of the Buttercup Co. was started up yesterday and the other will start in a few days.

A telegram of the 27th says that Mr. B. S. Bernard of San Francisco has purchased the following mines: Bullwhacker, Elephant, Premium, America, Eldorado, El Dorado No. 2, Minna, Minna No. 2, Lady Byron, Valentine Day, Ida Dudley, Fir Grove, Letter B, Tacoina, together with the Chicago furnace. The Company will be known as the Lander Consolidated, and will erect four more furnaces. Assays from some of the above have gone as high as \$140 per ton. It is estimated that eight thousand tons of ore are in sight in the Bullwhacker alone. An immense new body of ore was struck yesterday in the Adams and Farren mine by the Phoenix Co. equal to the best produced by the Eureka Consolidated.

HUMBOLDT.

GALENA.—*Register*, June 17th: We learn that the Nevada Butte Co. have completed their 20-stamp mill, and will start up Monday, on ore from the Butte mine.

RICH ORE.—Gregg & Fink shipped from the Gregg mine, Gold Run district, to the Reno mill, four tons of ore, and the gross result was \$212 per ton.

CENTRAL DISTRICT.—*Silver State*, June 17th: Clark Brothers have just completed a shipment of 40 tons to the Butte mill in Rye Patch for reduction.

ARIZONA CO.—The new mill for tailings was started up on Wednesday, and all the machinery is working to the satisfaction of all parties. Work will be commenced on the tramway on Monday.

BOLLION.—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$7,818.50.

RELIEF DISTRICT.—The Batavia and Pacific Co. are down 80 feet, and have 1,500 tons of fine ore on dump. They are putting up a 5-stamp mill, which will probably be running by July 15th. A roasting furnace will be added.

RAILROAD DISTRICT.—*Elko Independent*, June 17th: The ledge in the Rising Sun mine is ten feet wide, and works \$150 per ton. It belongs to Mr. Houghtaling. The Lyon, belonging to Morgan & Peyton, works \$100, and has six narrow streaks, an inch or two thick, that will assay \$300.

REESE RIVER.

THE SITUATION.—*Reveille*, June 21st: Mining has been going on in Austin since the spring of 1863, and the prospects of the district have never been more flattering than to-day. The best proof of this is that not one of the cabins in the edge of town is empty. Two years ago a new comer could step in and take possession of deserted lodgings almost anywhere.

SHUT DOWN.—Same of 24th: The Manhattan Co. mill is closed to enable the workmen to erect the amalgamating machinery. The force at work is as large as can be crowded in the building. The addition will increase the capacity to 30 tons per day. The steam works on the Oregon shaft are being taken out and heavier ones put in. The new pump is one of the largest in this State outside of Virginia and Gold Hill.

WASHOE.

IREMS.—*Gold Hill News*, June 20th: The Yellow Jacket is yielding 175 tons of ore per day from the 800, 900 and 1,000-foot levels, milling \$40 per ton. During the past week 220 tons of ore were taken from the Overman, assaying \$17 per ton. The principal yield is from the 226-foot level. The Caledonia yields 90 tons per day, keeping two mills running. The ore section is from the 300-foot level up. The Segregated Belcher is not yielding much ore. The sinking deeper of the Ophir shaft progresses, with no serious impediment from water, and it is estimated that it will take seven months to sink to the contemplated depth of 1,400 feet. On the 14th inst., \$22,975 was sent down from the Crown Point mine and \$31,689 from the Chollar-Potosi. Savage is yielding 175 tons of ore per day, and Hale & Norcross about the same.

Same of 21st: The new 60-horse power hoisting engine in the Crown Point works splendidly. Dall's mill, Washoe valley, destroyed night before last, was insured for \$80,000.

IREMS.—Same of 23d: The Buckeye mine, near Silver City, is being put into

first-rats working shape, and is already yielding handsomely. The daily yield is 40 tons, which is reduced at the Franklin mill. The sinking of the Gould & Curry shaft is progressing, and indications are encouraging. During the week 380 tons ore was taken from the Sierra Nevada mine. An arrangement will probably be made to work the Belcher through the Crown Point.

Sams of 24th says that the Savages struck a stream of warm water at its lowest level—1,400 feet—which has given its pumps all they could do, as well as those of the Hale & Norcross, which connects with it at the ninth level. This water now furnishes a supply for all the mills along the cañon. It is, moreover, considered a very encouraging indication of a large body of ore in the immediate neighborhood.

Same of 26th says the water has considerably lessened.

The Crown Point is running six mills, and the bullion receipts foot up to \$300,000 per month. The ore body widens out toward the Belcher mine, and the face of the drift shows improved assays.

The Enterprise of 25th thinks the water-flow in the Savage indicates a great parallel vein east of the Comstock.

SUTRO TUNNEL.—The tunnel was yesterday in a distance of 2,155 feet. The rock has changed again, and is now harder than it was one week ago.

The Champion lead, Diamond district, is from 18 inches to 6 feet wide, and the ore assays on an average, \$277. Some of it goes \$700.

WHITE PINE.

REVIEW.—News, June 24th: North Aurora is developing into a first-class mine, the ore now being hoisted netting at the mill an average of \$92 per ton. The engine for the hoisting works, on the main shaft of the Ward Beecher, has arrived. Eberhardt & Aurora shipments of bullion for the week ending to-day, foot up \$41,393.05.

The South Aurora has improved in appearance greatly, and the Stanford mill, which has been shut down for repairs, will shortly resume operations. There are at the mill 700 tons of good awaiting reduction, and on the surface dumps of the mine twice that amount awaiting shipment. The Ward Beecher Consolidated, which has recently commenced the shipment of ore, has become involved in litigation. We know nothing of the merits of the case. On the western slope of White Pine mountain a number of old locations have been started up, and the mines on the spur of the hills which surround Hamilton on the west are improving as depth is attained. At the present time a great deal of work is being done in that locality. It is expected that the Monte Cristo mill will start up within 30 days, and we will then have a thorough test of the capabilities of the Stetefeldt furnace in working our base ores.

The bullion shipments for the week amount to \$48,817.94.

Arizona.

BRADSHAW.—Prescott Miner, June 10th: Moreland & Co. original locators on the Tiger, have out of their deepest shaft, 140 tons of first-class ore, which will yield over \$6,000 to the ton; besides 250 tons of second-class ore which may go as high as \$1,000 per ton. The surface of every piece of ore is literally covered with native silver. The same is true regarding the other claims on the Tiger, all are rich.

HASSAYAMPA.—Messrs. Bean, Groom, and Davis have opened the Davis lode in two places, and taken out 200 tons. Crevice ten feet wide.

WALKER.—Water is scarce, and but little is being done. The Thunderbolt mill is running.

Big Bug mill is idle, waiting for water. Same of 17th says that a few days since, \$10,000 were offered for 100 feet in the "Tiger" lode: the offer is still pending and may be accepted.

Colorado.

ITEMS.—Herald, June 21st: Bennett, Gray & Root are taking out large quantities of paying ore on the Kansas—50 tons going to Hill every week, besides a larger amount of mill ore elsewhere....Hill & Berger are shipping ore from the Seventy-third lode, which is believed to be an extension west of the Cariboo. This mine is furnishing rich specimens of native silver....The water is out of the Idaho lode, and the crevice makes a good showing.

SUMMIT COUNTY.—Denver News: Very rich diggings discovered on Wilson Creek....French gulch is prospecting at the rate of \$1 per pan....The General Grant at the mouth of the gulch, are taking out good wages....The largest enterprise in the county is that of the Springfield, Greenleaf

& Haywood. They have put in a flume, five hundred feet in length. They expect to take out one ounce per day to the man. They are working twenty-five men....Five companies are working Georgia, Hunnig and American gulches, taking out one ounce to the man per day....In Illinois gulch, Wm. McFadden is working six men, realizing from \$6 to \$8 dollars per day each....Mover & Hangs are taking from Stillson patch one-half ounce a day, each, with three men....Stone & Adams, in Iowa gulch, one and a half miles from Breckinridge, are working five men and taking out one-half ounce each, per day....Colonel Chandler, of the Boston Mining association, arrived in Breckinridge last week. He brings \$70,000, which will be devoted to the struction of reduction works, at the junction of Bear Creek and Snake River or at St. John.

BULLION.—Miner, 15th: The total shipped since our last issue, was 11,796.9 ounces, coin value \$12,307.50.

ITEMS.—Same of the 23d: On Monday the Burleigh tunnel had reached a distance of 1,058 feet.—The adit on the Magnet lode has reached a distance of 170 feet, and has passed some large deposits of rich ore....There is great activity in the mining camps over the range....The Mammoth Mine continues to furnish a large quantity of pay ore....One of the boom ditches on Leavenworth Mountain has uncovered eleven lodes. One of the lodes has 18 inches of mineral....A test of Terrible ore, of 2d class, one ton each from the shaft and from the tunnel level, gave respectively 73 ozs., and 178 ozs.

Montana.

IDAHO DISTRICT.—Helena Gazette, June 19th: By a miners' meeting at Indian Creek, June 6th, it was resolved, that all mining claims must be represented within 30 days; and that those represented might lie over for one year.

FREDRICKSON.—The Miner's ditch is carrying 1,500 inches of water. Some 200 men are in the district working night and day, and all the indications are favorable. In Dry gulch Gillis, Laveridge & Co., are working six men, Potello & Leideman four men and Bisnet, Murphy & Co., three men.

GOOD YIELD.—Independent 16th: Mr. Pat Karr, from Blackfoot, informs us that his company cleaned up from their claim in Illinois gulch, after eight days' run, one hundred and eight ounces, or about \$2,000.

CABLE.—E. D. Aiken tells us that matters are looking up. The ditch is carrying 200 inches of water, and mining will begin in earnest next week. Work is progressing upon the Cameron ledge, with good prospects.

HIGHLAND.—Charley Ganter and Charley Moore are taking out from \$400 to \$600 per week on the old Pfifer ground, in the main gulch. Nevins & Co., are taking out first class ore. The Only Chance arastras are running and the yield will be greater than ever.

SILVER BOW.—There is 900 inches of water in the creek and there is a probability that there will be enough to supply the ditch with a full head all summer.

GERMAN GULCH.—There is more water in the gulch this year than has ever before been known, and the vast amount of snow now on the mountains is indicative of a hounteous supply during the whole season.

BLACKFOOT.—On Ophir Bar, Headney, Karr & Co. are running a hydraulic and making \$20 per day to the hand. Near by in the Illinois gulch, McCoy, Boyle & Co. are working some of the best ground in the country. On Upper Ophir gulch, Dan Johns, Brown & Maupin, Carr & Frazier, Pront & Co., Jas. Bingly, and several others, are mining with better results than at any time. For six miles down Ophir, from Blackfoot City, the best of mines are being worked on bars, hills, and in Gulch.

On Carpenter's Bar there are six hydraulics running day and night. In Snow Shoe, Rufus Johnson is running a hydraulic in the lower part of the gulch, with a bank of gravel ten feet deep, that prospects as high as \$1.50 to the pan. On Gold Hill, Johnson & Co. have been making as high as \$50 to the hand. On Upper Snow Shoe, Pat, and James Kelly are reported to be making an ounce per day to the hand. At Gold Canyon, still further on, towards the north fork of the Little Blackfoot, two men drifting took out 20 ounces last week.

Utah.

BULLION.—Salt Lake Herald, June 16th: Buel & Bateman shipped to the Omaha works, on Wednesday, forty-one tons of bullion; and yesterday ten tons more. They expect to ship a car-load of ten tons a day regularly, with an extra car load every third day. This will make eighty tons a week.

Mining Stock Market.

(S. F. Stock and Exchange Board.)

San Francisco Thursday Eve., June 29.

The stock market has been quite irregular but yet active during the past week with a marked fall towards the close. Amador has sold at \$300 and Eureka at \$65 to \$52½. On Monday 2,000 shares of Ophir were sold at steady prices.

The following table gives last Thursday quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week.

June 22. Highest.	Lowest.	June 29. Adv.	Dec.
Alpha.....\$9	13	9	10
Belcher.....139	243	196	175
Chollar.....81	84	86	83
Crown Point.....319	311	319	300
Eureka Cons.....15	15	14	14
Golden Chariot.....56	56	57	57
Gould & Curry.....137	137	102	92
Hale & Norcross.....61	61	58	60
Ida Elmore.....10	11	9	9
Imperial.....55	70	63	41
Kentuck.....153	167	142	139
Meadow Valley.....18	19	18	18
Ophir.....9	11	8	8
Orig. Hid Treas.....8	8	7	6
Overman.....10	12	9	10
Savage.....46	48	45	43
Yellow Jacket.....71	76	71	70

Latest Prices.

BID. ASKED.	BID. ASKED.
Alpha Cons.....900	Ida Elmore.....40
Amador.....173	Kentuck.....130
Belcher.....50	Meadow Valley.....18
Chollar.....300	Ophir.....4
Crown Point.....13½	Orig. Hid. Treas.....6
Eureka.....13½	Overman.....10½
Eureka Cons.....32	Savage.....43
Golden Chariot.....61	Sierra Nevada.....71½
Gould & Curry.....61	Yellow Jacket.....72

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
Altona G. M. Co., Nev. Co., May 28, 25c.	June 26	July 17
Dansey, Lyon Co., Nev., June 15, \$2.50.	July 18	Aug. 5
Eagle Q. M. Co., Cal., June 14, \$20.	Aug. 9	Aug. 14
Gould & Curry, Va. City, May 18, \$15.	June 22	July 1
Hanscom, Del Norte Co., April 28, 5c.	June 10	June 26
Kentuck, G. H. May, \$10.	June 24	July 1
Kincaid & M. Co., Tuo. Co., April 27, \$2.50.	June 10	July 1
Latawama G. M. Co., White Pine, May 16, 20c.	June 27	July 17
Mahogany, Owyhee Co., I. T., Jan. 20, \$2.	Aug. 10	Aug. 28
Marcelina, Nev., June 2, 20c.	June 11	August 13
Meadow Valley Ex. May, 1, 50c.	June 12	July 7
Mountain City M. Co., June 8, 25c.	July 18	Aug. 8
Nevada L. & M. Co., May 8, 4c.	June 8	July 8
Ophir, Placer Co., Cal., May 30, 10c.	June 30	July 17
Pinto M. Co., Nev., May 24, 12½c.	June 26	July 17
Salamanca G. & M. Co., May 4, 35c.	June 12	July 17
Sierra Iron Co., May 17, 60c.	June 25	July 20
Sumner, Kern Co., June 14, \$5.	Aug. 15	Aug. 30
Taylor, El Dorado Co., May 27, 10c.	July 12	August 4
Taylor M. & M. Co., El Dorado, Ap. 14, 25c.	May 24	June 12
Tecumseh, Calaveras Co., April 11, \$3.	June 12	July 6

MEETINGS TO BE HELD.

Altona No. 1.....	Annual Meeting, July 6
Chollar-Potosi.....	Annual Meeting, July 7
Ophir.....	Annual Meeting, July 3
Mahogany M. Co. (Cal.).....	Special Meeting, July 17
Pocahontas.....	Annual Meeting, July 5
Mochoak & Montrose.....	Adjourned Meeting, July 25
San Marcial.....	Adjourned Meeting, July 7
Seattle Coal.....	Special Meeting, July 12

LATEST DIVIDENDS—(Within Three Months).	Payable June 10
Chollar-Potosi, \$2.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka, div., \$2.....	Payable May 6
Eureka (Cal.), \$1.....	Payable June 7
Eureka Cons., 75c.....	Payable April 20
Golden Chariot, div., \$1.....	Payable March 10
Hale & Norcross, div., \$5.....	Payable April 10
Natoma, div., 1 per cent.....	Payable June 10
North Star, \$1 per doz.....	Payable May 10
Rodriguez, 1 per cent.....	Payable June 5
Yellow Jacket, \$2 50.....	Payable June 10

—*Advertised in this journal.

Leather Market Report.

(Consolidated weekly by Dolliver & Bro., No. 109, Post St.)

SAN FRANCISCO, Thursday, June 29.	
SOLE LEATHER.—Price still continues the same, there being a scarcity of light weight.	
City Tanned Leather, @ lb.....	26¢30
Santa Cruz Leather, @ lb.....	26¢30
Country Leather, @ lb.....	22¢25
All French goods still have an upward tendency, with a great scarcity of leading stocks. No change in domestic skins.	
Jodot, 8 Kil., per doz.....	\$62 00
Jodot, 10 Kil., per doz.....	82 00
Jodot, second choice, 11 to 15 Kil., per doz.....	80 00
Lemoine, 16 to 18 Kil., per doz.....	86 00
Lerwin, 12 and 13 Kil., per doz.....	80 00
Corneillon, 15 Kil., per doz.....	72 00
Corneillon, 12 to 14 Kil., per doz.....	85 00
Ogerau Calif., per doz.....	84 00
Merdier Calif., 16 Kil., per doz.....	65 00
Common French Calf Skins, per doz.....	35 00
French Kips, @ lb.....	1 00
California Kip, @ doz.....	60 00
Eastern Wheel Stuffed Calf, @ lb.....	80 00
Eastern Bench Stuffed Calf, @ lb.....	1 10
Eastern Calf for Backs, @ lb.....	1 15
Sheep Hides for Topping, all colors, @ doz.....	5 00
Sheep Hides for Linings, @ doz.....	5 50
California Russett Sheep Linings, @ doz.....	1 15
Best Jodot Calf Boot Legs, @ pair.....	5 25
Good French Calf Boot Legs, @ pair.....	4 50
French Calf Boot Legs, @ pair.....	4 00
Harness Leather, @ lb.....	30¢
Fair Bridle Leather, @ doz.....	45 00
Skirting Leather, @ lb.....	40 00
Walt Leather, @ doz.....	30 00
Buff Leather, @ foot.....	20¢
Wax Side Leather, @ foot.....	18¢

TO THE MINING INTEREST.—Believing that they can thereby do the mining interest the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and carry far our message. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanic's Institute, care J. H. GILMORE, San Francisco.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.60. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office.

FOR COUGHS, COLDS, AND THROAT DISORDERS, use "Brown's Bronchial Troches," having proved their efficacy by a test of many years. The Troches are highly recommended and prescribed by Physicians. Those exposed to sudden changes should always be supplied with "The Troches," as they give prompt relief.

Owing to the good reputation and popularity of the Troches, many worthless and cheap imitations are offered which are good for nothing. Be sure to obtain the true "Brown's Bronchial Troches." Sold everywhere.

AGENTS CAN MAKE FROM \$1,000 TO \$5,000 A YEAR in almost any section of the country, selling Dana Bickford's new and improved FAMILY KNITTER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Send stamped envelope with full directions for an illustrated book. Address: DANA BICKFORD, Vice President and General Agent, 689 Broadway, N. Y. 23v22-6m-lp

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address: Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 20th, 477 9th Ave., New York. Good work at high prices if desired. 23v1-12mbp

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Out Glass to order on reasonable terms. 14v20

Metallurgy and Ores.

Richardson & Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,800 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lys

LOUIS FALKENAU, STATE ASSAYER, Analytical and Consulting Chemist, 421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc. One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

CALIFORNIA ASSAY OFFICE No. 512 CALIFORNIA STREET, One Door West of Montgomery.....SAN FRANCISCO.

J. A. MARS, Assayer. Analysis of Ores, Mineral Waters, etc. 10v36

LEOPOLD KUH, (Formerly of the U. S. Branch Mint, S. F.) Assayer and Metallurgical CHEMIST, No. 611 Commercial Street, (Opposite the U. S. Branch Mint,) SAN FRANCISCO, CAL. 7v21-3m

G. W. STRONG, W. L. STRONG, G. W. STRONG & CO., Metallurgical Works, No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22tf

F. MORRIS, Practical Assayer and Metallurgist, Nos. 30 and 36 Fremont street, SAN FRANCISCO.

Having rented Amalgamating Works from Union Foundry, is prepared to work Ore of all kinds by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the fire assay as any one on the coast. 19v22-3m

RODGERS, MEYER & CO., COMMISSION MERCHANTS, ADVANCES MADE On all kinds of Ores, and particular attention PAID TO

CONSIGNMENTS OF GOODS, 4v16-3m

NEVADA METALLURGICAL WORKS. 19 and 21 First st., in Golden State Foundry. RIOTTE & LUCKHARDT. Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

PLATINUM Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing purposes H. M. RAYBORN, 25 Bond street, New York. Platinum Scrap and Ore purchased. 22v18t

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 13TH.

MOP-HEAD.—John Brizee, Alvarado, Cal.
ATMOSPHERIC-PRESSURE ATTACHMENT FOR DENTAL-PLATES.—James P. Gillespie, San Francisco, Cal.
GANG PLOW.—William Parrish, Dayton, Oregon.

Stained Glass.

The modern method of staining glass is about as follows: A full sized cartoon of the subject to be portrayed is prepared by an artist; the figures and other objects to be represented being drawn in bold, dark outlines, specially adapted for the exigencies of a painting upon glass. From this picture a "cutting drawing" is made, generally on canvas, whose outlines are little more than a simple diagram for the guidance of the glazier, the outlines of the pieces being made to correspond exactly with the leaden ribs by which they will ultimately be fastened together. The glazier, who works under the superintendence of the glass stainer, having duly performed his share of the work, sends back the glass, cut to the required patterns, into the room of the stainer. The latter arranges the pieces of glass upon his table, and then, with a camel-hair brush, covers evenly the whole temporarily united surface with a coloring hase or oxide, called *mat*, which is either red or black, as may be required. On this surface he next traces, with the proper pigments, (prepared generally with gum-water) the more elaborate outlines of the drawing, which are to be burned into the glass. All the coloring matter afterwards receives a coating with spirits of tar. After the pieces of glass have been thus prepared, they are taken away to be "fired," or baked, in a hermetically sealed kiln, where they remain for about nine hours, exposed to an exactly tempered intense heat, until the different colored metallic oxides have thoroughly combined with the surface of the glass.

The thick iron door in the front of the oven, or kiln, is carefully built up with bricks, previous to the "firing;" two long "nozzles," affixed to the door, being left projecting through the bricks, to enable the workmen from time to time to ascertain the exact stage of the burning-in process. The glass lies, with the painted side uppermost, on the iron shelves of the kiln, each shelf having been rendered perfectly level by a thin coat of whitening or prepared lime, to prevent any bending or deflection of the glass.

To indicate the attainment of the proper degree of heat, two small pieces of glass, called "watchers," are placed in front of the shelves within the oven, where they can easily be seen through the nozzles. The heat of the kiln, is regulated by an iron damper half way up the flue. When the workman sees that the colors have become thoroughly fixed through an incipient fusion, the fire below the kiln is at once drawn, and the glass left to cool of itself, or anneal, which it does in twelve or fourteen hours. The pieces, now totally changed and beautified, are sent back to the glazier, who, by the help of his cutting drawing, "leads them up," or sets them in the leaden frets, thus combining them in one harmonious whole. The apparatus for rough casting the frets, and for moulding them into the requisite forms, is very simple and effective.

In drawing the original cartoon, the special determination of the outlines is of

the last degree of importance; for the leads will have to form the darker outlines of the picture—intensifying, instead of injuring, or in any way interfering with, the general effect. A carefully considered disposition of the drapery of figures must likewise be attended to, and such a judicious treatment be exhibited in the folds of the raiment, and in the smoother portions of the same as may serve to throw them into strong relief. It is impossible to get the "half shadows" of an ordinary picture into a glass painting, and numerous and interesting are the clever devices of the glass-stainer to obviate the difficulties inseparable from the exercise of this beautiful art.

Editorial Notes Eastward.—8.

Nevada to Utah.

Ever onward rushed our train, hearing us nearer our "home," as our elder generation in California still term the place of our nativity, however long we may have been on the Pacific Coast. Our children will no more think and speak thus of the East; and although it is pleasant to reflect on the strong tie between us now and our sister States, yet we cannot but be glad that on the shores of the grand Pacific our descendants will find "the dearest spot on earth—sweet home."

We pass over the plains of Nevada, reaching and leaving behind the many

a feat never achieved before or since that time.

And while we sleep; unless the memory thereof incites us to rise at an exceedingly early hour of the morn, we pass by the scene of one of the grandest celebrations ever held in our land. Where, on the 10th day of May, 1869, the West and the East came together; where the iron links of the Atlantic and the Pacific were firmly connected by gold and silver rivets of California, Nevada and Arizona; where the iron horses of either slope, after a weary travel, met and rubbed noses in the most friendly fashion; and where was completed a work which, to a certain extent, may be fairly said to have revolutionized the trade of the world. How the last spike was driven, each blow echoing from the alarm



COL. THOS. A. SCOTT, PRESIDENT OF THE U. P. R. R.

hells of all the large cities in our Union; how speeches were made and friendships pledged in golden wine; and even "what the engines said,"—all these have been stated and restated in the journals of the land.

The U. P. R. R. and its President.

The place where the rails met is not the place of the present junction of the Central and the Union Pacific. Ogden is now the junction, and at this place we leave the one road and pass under the management of the other.



THE MEETING OF THE ORIENT AND THE OCCIDENT—C. P. AND U. P. RAILROADS.

towns whence radiate lines of travel to the north and south, and whence come the results of busy industry from the bosom of the earth to enrich the world. Past Carlin, Elko, Halleck, Toano, and soon we enter a new territory,—one far-famed throughout the world,—Utah, the chosen land of the Latter Day Saints.

A Great Work and a Grand Celebration.

Before long, after having traveled some 800 miles from the Pacific Ocean, we reach the waters of an inland sea, Great Salt Lake. And while we are still slumbering soundly in our herths, we pass over a scene of a great work. For commencing some seven miles from Monument Station, between Lake and Rozel, the Central Pacific built ten miles of track in one day!

Since the completion of the road, the Union Pacific has changed its management, and is now under the charge of the first "railroad man" in our country,—the Honorable Thomas A. Scott. The attention of the East and of the West has lately been attracted to this gentleman on his being elected to the Presidency of the U. P., and there can be no question but that he will exercise a most powerful influence on the interests of our coast. The accompanying illustration will familiarize our readers with the features of one of the railway kings of the world, whose past history is being read with the greatest interest, and whose future actions are awaited with intense expectation, especially on our side of the continent. His management of the Pennsylvania Central R.R. and its associated lines is unrivalled in the records of railroad operations.

April 12, 1871.

A Rain of Frogs in Arizona.

With the July number of the *Overland Monthly* is commenced the seventh volume of this most excellent magazine, which we heartily recommend to our friends. Among its pages we find the following concerning a (to us) new product of Arizona.

The phenomenon familiarly known as the "rain of frogs" has been ridiculed and contradicted by certain scientists; nevertheless, there is abundant proof to show that it has occurred, and probably will again. In 1864, the writer, in company with some fifty other travelers had personal experience of the fact. We were in Arizona, not less than twenty miles from any stream, pond, or water. The day was extremely sultry, and we had halted to let the animals graze and rest for an hour or two. Not a living thing besides ourselves and horses was in sight, and certainly no frogs were hopping over the the rich, tufted *grama*-grass, which covered the ground for miles in every direction. Suddenly a dense, black cloud made its appearance, and it soon began to discharge a copious rain upon our unsheltered heads. The drops were very large, and the water quite warm. Nearly every person wore a broad-brimmed felt hat, which proved a great protection against the rain as well as against the sun. Our attention was soon arrested by the pelting of something which struck our hats like hail, but which proved to be frogs, and in less than two minutes the grass was fairly alive with those creatures. Several of the party took some from their hat-rims. Our unexpected visitors were all of one size, about a quarter of an inch long from nose to rump, very lively, and apparently in the best condition. Their fall had been broken by the springy, resilient nature of the grass. It is not probable that several hundred thousand, perhaps millions, of frogs had suddenly been hatched into life in the ground by the rain, or, if they had, that in their infantile glee they jumped five feet eleven inches from the earth to the top of our heads merely to show how the game of leap-frog should be played. Nor had they any such caudal appendages as are generally attached to juvenile *rana*. They came from above, in company with the rain; and this fact was made clear by holding out

the hand and seeing them fall upon it, as well as finding them on our hat-rims. The eggs from which these reptiles sprang, had undoubtedly been drawn up into the atmosphere by the action of a water-spout, and held in suspension with aqueous particles long enough to hatch them out and give them perfect form; then, by the force of mutual attraction, the separated particles of vapor got together in such masses as to form heavy sheets of water, which, in turn, became amenable to the law of attraction of gravitation, returning to the earth from whence it had been drawn. In the fall new divisions were created, called "drops," among which the frogs descended, having been, obedient to similar forces, moving with the aqueous particles. This instance is cited to show that other things besides vapor are translated from earth to atmosphere by certain well-known and accredited developments of natural laws.

A NEW CLASS of people, says a writer in the *Bulletin*, is needed in the foot-hills before they can be made use of for what they are worth—a class of persons who have

never been excited by seeing fortunes made suddenly, and who have not been subjected to the repeated failures of the hill stoics. Orange, fig and lemon orchards, walnut and almond groves, vines, etc., will be their common interest and support; a solitary fig tree ripening two or three crops, while grapes produce ten tons to the acre.

So let it be; but there is less imagination in, and more money just at present coming out of the gravel mines, which are good for 500 years to come.

The *College Courant*, an excellent paper always, is particularly good in the number of June 17. The article on the requirements of Yale University, by Prof. Dana, which was previously submitted to the professors, will interest all connected with universities. Published by C. C. Chatfield & Co., New Haven.

POPULAR LECTURES.

A Plea for the Study of English.

[Prof. SWINTON before the MECHANIC ARTS COLLEGE, Mechanics' Institute Hall, S. F. Seventh Series, Reported expressly for the PRESS.]

LECT. II. June 24.—When the Regents of the University of California, said the lecturer, prescribed the study of the English language as a leading duty of the literary professorship, they expressed a strong and growing tendency of the modern school. Up to within quite recent times the study of English has been very much neglected, and our students have been instructed in every tongue but our own.

The Study of English vs. Classics.

The lecturer did not wish to cast discredit on the study of the classics, nor to deny that it has very many advantages. He granted that it was of very great value as a means of mental discipline, and that it was a help and a key to a large part of our language. But he would vindicate the claims of our mother tongue, and, purposely abstaining from urging the practical reasons therefor, which are always able to make themselves felt, he would found his plea on these two points just mentioned—mental discipline and a help to understanding English—which are the main grounds of the advocates of the classics.

As to the latter point, the classics help us in our vocabulary in a great measure (but the same is true of the study of English) and do not help us at all in the grammar, in which the study of English has therefore the advantage. This will be illustrated hereafter. And as a means of mental discipline, why should not English serve as well as Latin and Greek? We shall get some important light on this matter by tracing briefly the steps which led to the study of modern philology.

The Study of Language Reveals Ancient History.

The first true beginning of the sound investigation of language was the discovery, at the beginning of this century, of a certain agreement of some of the European languages, as the German, etc., and the Latin and Greek, with a certain Asiatic tongue which is called the Sanscrit. This showed why the Latin and Greek resemble one another, and why the Teutonic also agreed in its roots, etc., with the classics;—because they were all of common descent. Then another step was taken, and it was found that the Polish, Russian, Welsh, Celtic and other European languages also had the same affinity, and that they all came from the ancient Sanscrit. This also demonstrated an intimate kinship of the speakers of these tongues; that the ancestors of the Germans, Celts and Slavons of the European nations, dwelt side by side somewhere in Northwestern Asia, at least 3,000 years before the Christian Era, and by the side of the ancestors of the Latins and Greeks and of the Asiatic tribes. This investigation is called comparative philology, and its immense value was first shown by Jacob Grimm.

The History of the English Language.

Now let us examine what the English language is, and trace up its history. We find that it has borrowed much of other languages in modern times, but this decreases as we go back. We find it strongly influenced by the Norman conquest, but yet a distinct language before this. We trace it back again to the Gothic, (Germanic), and, through the discoveries just alluded to, to the ancient Sanscrit. This last is a recent discovery, and one which is now causing an increased study of Anglo-Saxon, is giving much greater importance to the matter, and is teaching us very much concerning our mother tongue.

English Grammar an Absurdity.

The lecturer spoke at length concerning English grammar, a thing which at present does not exist. English has been called a grammarless tongue, which statement is only a rather emphatic statement of a pregnant fact. The English language is much older than the English grammar. In the 16th century, the scholars, in their learned ignorance, tried to fit to our tongue the Latin grammar. Hence sprung that hybrid—English grammar—to which we have been sacrificing, for 300 years, our children and the stranger within our gates. Prof. Swinton illustrated by examples the fact that Latin grammar is essentially foreign to English and cannot be adapted to it. Of the rules given in our grammars

very many are absurd and most are superfluous. If we are to have an English grammar—and the thing is by no means hopeless—it must be built up by the intelligent study of the language and not by forcing on to it rules by nature foreign to its very essence.

How Words are Made Up.

The lecturer spoke also at length of the vocabulary nature of our language, of the importance and interesting nature of its study. He gave several examples of the derivation and formation of words, of which we select a few.

FEARLESS is compounded of two parts or elements,—of the noun *fear* and of what is called the "formative element" (because it merely forms, by its addition, an adjective out of the noun) *less*. This last is not our word *less* but is the Anglo-Saxon *lease* which is our word *loose*. *Fearless* therefore means loose or free from fear.

BRAVELY is compounded of *brave* and the Anglo-Saxon *lic*, that is, *like*.

LOVED.—The termination *ed* of the past tense has long puzzled philologists. We get no light from the Anglo-Saxon, for it is used the same there as we use it. But the study of the Teutonic languages shows that it was an independent word. And the origin of this termination was found out through the discovery, a few years ago, in a Swedish library of the fragment of a translation made in the 4th century of the Christian Era of one of the gospels into Meso-Gothic, a language now dead. The Meso-Goths were a christianized tribe which dwelt on the lower Danube, and our termination *ed* is derived from *det* which is our *did*. *I loved* then means *I did love*.

The lecturer then spoke of the words adopted from the French and other languages in the course of time, and of how the engrafting of such had an effect in checking the inner growth of the language. We have not the space to do justice to his lecture, and are compelled to touch merely on some of the prominent points which he gave to show how interesting and important and useful is the study of our own language, and how it is valuable as a means of mental discipline and otherwise. He concluded with a eulogy of the purity and grandeur of English.

Strawberries on High Bushes.

A writer in the *St. Paul Press* affirms that he has seen scores of miles of country some sixty miles north of Fort Totten which was an almost continuous plantation of wild strawberries, growing in many of the rich spaces, not on horizontal vines, but on bushes, many of them three and four feet high, on which the clusters of this delicious fruit, attained a size rarely reached by the most assiduous cultivation. So profuse was this native production of strawberries, on what is called the Pembina Mountain, that the cart-wheels, crushing the berries as they revolved, were fairly red with this wild vintage of the plains, and left long crimson trails, as of blood, behind them.

Wild strawberries, he adds, are abundant in every part of the Red River valley; but on the fertile plateau known as the Pembina Mountain, remote from every human settlement, they grow with a luxuriance which is simply astonishing, and so far as we know, unrivalled. It is the only region where we ever met with the bush strawberry, but the plant there seems to take the upright in the very pride of its exuberant fruitfulness, as if it disdained to creep along the earth with its scarlet crown of glory.

MUSICAL SAND.—It is said that some six miles from San Buenaventura, Santa Barbara county there is "a marvelous deposit of musical sand." A mere step of the foot upon it gives off a slight musical sound; though to make it very distinct it is necessary to strike it a glancing blow with the foot or a staff. When that is done a clear, loud, musical sound, on the pitch of G, is given out, prolonged in a uniform sound as long as the staff or foot is in the act of passing through or over the dry deposit. We have traveled, for days, in the northern part of the State, where the loose stones upon the ground would give of a very strong musical sound at even a slight touch of the foot or a stick.

A PYRAMID OF GOLD.—A pyramid representing the quantity of gold produced in the Thames gold field, New Zealand, is promised for exhibition in the Mechanics' Fair of San Francisco, by A. Bryce Bain, (Honorable Secretary of the Thames Mechanics' Institute,) of Thames, N. Z.

GOOD HEALTH.

The Stomach.

That most wonderful organ, the human stomach, is very frequently troubled with an excess of acid; and when so troubled, the first thing that is naturally suggested, is a dose of some alkaline remedy, and down goes a teaspoonful of bicarbonate of soda or something of the kind, when a little thought upon the economy of the vital process would lead to a different way of arriving at nearly the same result. The saliva is known to contain free soda, and generally, if extreme substances were kept out, would be the proper corrective; but instead of properly masticating the food, it is too often washed down with a swallow of some liquid that contains the material for creating more acid, in that way rendering entirely useless the natural secretion; in other words, inserting a wooden cog in the wheel of refined steel, or its equivalent. And this is only one of many cases where the substitution of an artificial for the natural remedy works a finally irremediable evil; because eventually Nature becomes disgusted and refuses to supply the steel tooth we persist in replacing with a wooden one. F. M. S.

San Diego South, Feb. 20th, 1871.

Insolation or Sunstroke.

As the time when attacks of sunstroke are most frequent, is now approaching, it seems desirable to correct certain misapprehensions on the part of the public concerning the causes of this dangerous affection. It is commonly supposed that attacks occur only during exposure to the direct rays of the sun. But this is not so.

The Causes of Sunstroke

Are classified by medical authorities as predisposing and exciting causes, and of the latter, exposure to the heat of the sun is undoubtedly the most frequent; but the circumstance that attacks are common in sheltered situations, and sometimes actually come on in the night-time, shows that the direct action of sunshine is not alone responsible. Any vital vitiated condition of the system, arising either from living in a foul atmosphere or from dissipation, great fatigue, a lack of nourishing food, garments worn so tightly about the neck and chest that they restrain the free action of the parts, are all powerful predisposing causes, which, combined with exposure to great heat, are liable at any time to induce an attack. The influence of great fatigue in predisposing to an attack can hardly be overrated.

The experience of the British army in India is conclusive on this point. In the case of a particular body of troops obliged to make a hurried march of upward of eleven hundred miles during the hottest season of the year, all stood it well until some three-quarters of the distance had been passed, when the men began to exhibit unmistakable signs of fatigue in the shape of languor, loss of flesh, and failing strength. It was at this time that cases of sunstroke first appeared, and they continued with alarming frequency, coming on in the night as well as in the daytime during the remainder of the march.

Testimony from the same quarter concerning the bad effects of overcrowding and insufficient ventilation is equally explicit. It is remarked by Dr. Butler, that the men under his charge who, though not overworked or fatigued, were housed in crowded and badly ventilated barracks, were the ones who furnished the greatest number of serious cases. Out of sixteen cases mentioned by Mr. Longmore as occurring in a company belonging to his regiment, thirteen were attacked in barracks or in hospital. Insolation has also been frequently observed on board ship, most often where overcrowding and impure air were added to the influence of excessive heat. It is not uncommon on board the mail steamers in the Red Sea during the months of August and September, and it has been observed that most of the cases occurred while the sufferers were in the horizontal position in their well-ventilated cabins.

The Symptoms

Preceding an attack are in some cases scarcely observable, the person suddenly

falling in fatal syncope, and dying before assistance can be of no avail. More frequently, however, they are well marked, and, if early recognized, much may be done even by the non-medical to avert the serious consequences that might otherwise ensue. The more obvious symptoms are extreme heat and dryness of skin, often accompanied by a peculiar stinging sensation over the whole surface of the body, giddiness, congestion of the eyes, a sense of oppression about the chest, and a frequent desire to micturate. Contrary to the general opinion, headache is not a common symptom, though occasionally present. After a longer or shorter continuance of these symptoms, the patient becomes insensible, the heat and dryness of the skin increase, the respirations become hurried and labored, and unless remedial measures are speedily applied, death soon follows.

At the earliest moment after the attack, let the patient be carried to some cool shade where there is free circulation of air, his body stripped, and his face, neck and chest, freely donched with cold water. Continue this until the more serious symptoms, such as absence of consciousness, disturbed breathing, and great heat of skin are relieved, or until the arrival of some competent physician, who, on the discovery of the trouble, should at once be called. Cold water may be freely given inside as well as out, if the patient demand it. The causes of sunstroke previously enumerated will suggest the means to be adopted for its prevention.—*Galaxy*.

Little Causes of Death.

There is a time when a man is in such vigorous health, that it almost seems as if nothing could hurt him.

A young lady alighted from her carriage in the Central Park and stood upon the damp grass for half an hour, listening to the music of the band; her feet became cold, a chill struck through her system, and she died in a few days of disease in the throat.

Recently a lady from New York was visiting some of the interesting places in Rome; becoming weary, she sat on a stone bench for a few moments, and has been paralysed, from her waist down, ever since.

A person walks on a summer's day to some public exhibition or picture gallery; it feels refreshingly cool on first entrance, time passes unawares, when all at once an ugly chill runs down your back, and next day there is a cold which is to worry and annoy for weeks if not months. Very many, especially delicate ladies, "get their death" in this way, in visiting the picture galleries and public buildings of the Old World; the precaution should always on such occasions to have an extra shawl along, even in the hottest days of summer, to be thrown over the shoulders, and if the gloves are kept on, it is a great aid in preventing the system from cooling too rapidly.

It is a simple and a very little thing to take a bath. A young lawyer took a bath some years ago in this city; he stayed in too long, became chilled, and was a cripple all his days, for forty years afterwards.

Many a person has been found dead in the bath-tub, from attempting to enjoy that luxury too soon after eating. Never bathe, hot or cold, on a full stomach; the most perfectly safe time for taking any kind of bath is before breakfast, for then there is the least danger that the system is overheated, and then too it has the most vigor, the greatest power of retraction, the greatest ability of resisting the influence of cold.

It is usual for sea-bathing to be taken in the middle of the forenoon or afternoon; but considering the hot sun, sending its fiercest rays on the head, it will be wiser and safer to select the early morning.

BONE FELON.—Of all painful things can there be any so excruciating painful as bone felon? We know of none that flesh is heir to. As this malady is quite frequent and subject of much earnest consideration, we give the latest recipe for its cure, which is given by that high authority, the *London Lancet*:

"As soon as the disease is felt put directly over the spot a fly blister, about the size of your thumb nail, and let it remain for six hours, at the expiration of which time, directly under the surface of the blister, may be seen the felon which can be instantly taken out with the point of a needle or a lancet."

THE Oregon Insane Asylum, at the latest dates, contained in all one hundred and forty-one patients.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. V. STRONG,
J. B. EWER, JNO. L. BOONE.
Office, No. 414 Clay St., below Sansome.

SUBSCRIPTIONS payable in advance.—For one year \$4;
six months, \$2.50; three months, \$1.25. Clubs of ten
names or more \$3 each per annum.

NEW YORK OFFICE: Room 25, Park Row. W. E.
PARTRIDGE, Editorial and Business Correspondent.

San Francisco:

Saturday Morning, July 1, 1871

Gold and Legal Tender Rates.

San Francisco, Wednesday, June 28, 1871. Legal Tenders
buying @90; selling @90½. Gold in New York to-day
112½.

Table of Contents.

Universal Boring Machine, Ill.; Remarkable Plant from Nevada; Academy of Sciences; Eastern Visitors to our State Fair.....	401
MECHANICAL PROGRESS.—Screw-Bolt Making in Chicago; Bessemer Metal Manufacturers in the U. S.; Electro-Magnetic Boiler Seals Pre- ventor; New Safety Valve; Composite Ships; Torpedoes in Oil Wells; Rails; Circular Saws for Stone-Cutting.....	402
SCIENTIFIC PROGRESS.—Animal and Vegetable Kingdoms Continuous; Nitro-Chromic Bat- tery Fluid; String Vibrations made Visible; Conservation of Force; Herschel the Father of Photography; Detecting Artificially Col- ored Wines.....	402
Right and Left; Hoopa Valley Reservation; Blackberry Wine.....	403
MINING SUMMARY; Mining Shareholders' Di- rectory; Mining Share Market; Market Rates.	404, 405
List of Patents; Stained Glass; Editorial Notes Eastward, Ill.; Rain of Frogs in Arizona.....	406
Plea for the Study of English; Musical Sand; The Stomach; Sunstrokes.....	407
Notices to Correspondents; End of Vol. XXII; Strike at Sutter Creek; Patent Office Matters; Casting Iron Pipes like Bullets; Water Pipe Pressure Limits.....	408
Water Pipe Pressure Limits, Ill.; Telescoping, Ill.....	409

Answers to Correspondents.

WATER PIPE. Smartsville.—As your ques-
tion requires an extended answer, we
shall give an article on the subject at
the earliest opportunity.

F. H. Battle Mountain.—Communication
and package received. Will be noticed
next week.

J. M. of S. F. asks: Is there any such
thing as a cube mathematically exact?
Theoretically, yes; practically, no; if we
understand your question.

The End of Volume XXII.

With this number we close Volume XXII
of the SCIENTIFIC PRESS. During the past
half year we have had the most convincing
proofs of the increasing interest taken in
our work by our readers, and of the assist-
ance we have been able to render them in
their every day life. Our subscription list
has been very largely increased, advertise-
ments have come in rapidly, and the kindest
of letters and of notices have been re-
ceived from all quarters of the Pacific
coast.

We start on our next volume with better
auspices than ever. Only a few of our
readers have failed to renew their sub-
scriptions,—very few compared with pre-
vious years,—while large additions have
been made. Our expenses have also in-
creased, we may be allowed to state, as we
have added to the amount of matter given,
to the number of illustrations, etc. There-
fore we would ask our subscribers to send
in their dues as promptly as possible. And
so with many good wishes to our kind
friends, and with the request to all to read
the paper and judge us by our works, we
end Volume XXII and commence with Vol-
ume XXIII.

ANTIOCH RAILROAD.—The Antioch *Led-
ger*, of June 24th, says that eastern capi-
talists are engaged in an enterprise which
promises the building of the Antioch and
Visalia R. R.

A NEW HAVEN gentleman recently re-
covered \$375 for a tres spoiled by gas from the
New Haven Gas Co.'s pipes.

The Strike at Sutter Creek.

The strike, last week, at the minns of
Sutter creek, is one of the most deplorable
events that have happened of late in our
mining industry. This matter has been one
of the absorbing topics of the day, notwith-
standing the meeting of political conven-
tions, and the strike seems to meet with
no sympathy whatever from those not con-
nected with the movement.

While it is rather difficult to arrive at
the precise stats of affairs and the reasons
leading to the strike, yet the following
seems to be authenticated by the best au-
thorities.

First. The strike is not one of the min-
ers, properly speaking, but has been
brought on and is now sustained by out-
siders parties, by demagogues who thus seek
to benefit themselves to the injury of the
working men. Thus, when Governor
Haight addressed the miners in the hope of
effecting a compromise, one Eagan, County
Supervisor, (not a miner) is reported as
having made an inflammatory and insult-
ing speech in reply, rejecting all terms on
his own authority, irrespective of the
wishes of the miners.

Second. The avowed purpose of the
striks was to place unskilled and skilled
labor on the same footing,—a direct injury
to the good workman, and a most unjust
thing.

Third. The strike was carried out con-
trary to the wishes of the majority of those
directly interested,—the working popu-
lation. Most of the miners are reported as
satisfied with the prices paid, which are
the same as those which have ruled for a
number of years past. There was no re-
duction attempted on the part of the com-
panies owning the mines.

Fourth. Instead of merely quitting work,
the strikers have attempted to put the mines
in such a condition as to destroy all
hopes of working them hereafter. There-
fore, instead of benefitting themselves,
they injure both sides.

Under these circumstances, we cannot
but pronounce the "strike of the dema-
gogues" (we will not insult our miners by
calling it the *miners'* strike) as most un-
justifiable and wrong. These demagogues
have succeeded in persuading the foreign
population, who are naturally less able to
understand the true relation of affairs than
people well acquainted with our language,
that they have been wronged. By ap-
pealing to them in the most unfair man-
ner, they have succeeded in working the
greatest injury to the laborers themselves
and to their employers. We most sincerely
hope that these wicked leaders, who seek to
enrich themselves at the price of misery
and suffering on the part of the miners,
may be speedily brought to justice.

Our sympathies are strongly with the
working men, and we grieve that they
should have been led astray by designing
loafers. We advise them for their own
interests to throw such persons aside and
to be guided by their own better judg-
ment. They must see that, without the
influx of capital to the mines, there can be
no employment at all for them, and that
the whole country will be so much the
poorer. Capital must be protected, or it
will go where it can find protection. We
are as strongly opposed as any one to the
oppression of monopolists; but every one
must grant that capital is absolutely nec-
essary to the development of our country.

CROFUTT'S TRANSCONTINENTAL GUIDE.—
The publishers of this work—the best and
most complete guide book published in
America—furnishes numerous illustrations
of the rarest scenery on the line of the
Union Pacific R. R., and the C. P. R. R.,
a few of which views he has consented
that we should reproduce in our paper.
Two appear with our "Editorial Notes" in
this issue. Crofutt is entitled to much
credit for his liberal enterprise, and every
tourist should buy his book, no matter how
many other guide books they possess.

Patent Office Matters.

New Publication of Patents, etc.

A late visit to the U. S. Patent Office,
after an intervening space of three years,
shows much improvement in the arrange-
ment of affairs inside, and that business, in
many particulars, is transacted more guard-
edly and rapidly.

We wish our government in all such im-
portant departments would cease its folly
of changing its experienced servants peri-
odically, for political reasons alone—a
practice expensive, annoying, and be-lit-
tling to our national reputation.

Publishing Patents in Full.

In a brief conversation with the Com-
missioner, Gen. Leggett, we learned that
after the 1st of July next, all patents is-
sued will be printed separately, in pamph-
let form, with the drawings, and sold at
ten cents a copy. The size of the pages
will be about 5 by 9 inches, or what is
termed in the office "bill size." The pres-
ent prices of printed copies varies from
50 cents to \$1.50.

Free Copies to Inventors.

An important circumstance for inventors
in this change is the fact that the office,
with much generosity, proposes to send
every applicant for a patent, whether his
petition is allowed or not, copies of all
patents issued for the ensuing six months
in the class in which his invention is
placed. In some large classes this will
give inventors an abundance of printed
paper with much information that they are
directly interested in.

Distribution of "Public Docs."

This plan will effect a wiser distribution
of the government's printing ink and papers
than the old way of handing over to Con-
gressmen the huge list of patent claims,
with insignificant drawings, to be sent to
their relatives of various grades, and
political friends indiscriminately, [all of
whom can vote, and, at least, make their X
mark]. Some are used in filling up still-
born book cases; other copies afford a few
days amusement for the children, and a
majority are finally used for lighting fires,
or exchanged for wares with the tin ped-
dlers who buy old rags and paper stock.

We are glad to see this move in a good
direction, although we do not think it will
prove a full success to send out the printed
patents free in the way intended. It
would be better, in our opinion, to send
none to anybody unless solicited, but allow
everybody to order copies of any class of
patents for a nominal price, say one cent
per page, which would more than pay the
cost of printing in large numbers. We
thank Commissioner Leggett for this ac-
tion, however.

A Much Needed Publication.

Colonel Leggett gave us a very correct
opinion of a publication now most wanted
by inventors and others, viz., a work which
reviews the patents and inventions already
made in each class and division, showing
the present attainments, whereby persons
interested in certain kind of inventions
may readily obtain the information they
specially desire without purchasing and
being inconvenienced by voluminous pages
of no value to them whatever. Such a work
on American patents, given in bound
volumes up to the present time, and the re-
view continued in frequently issued pamph-
lets or circulars, for each division, so that
each class could be subscribed for sepa-
rately, would, in our opinion, become im-
mensely popular and well patronized.

The capital city—headquarters of the
great department—with its numerous
solicitors, is noted for no periodicals by in-
dividuals for the benefit of mechanics and
inventors.

I have had interesting and pleasant in-
terviews with the officials in the various
offices in the patent office, and have heard
many plainly spoken compliments for the
more than usual originality and ingenuity
manifested by our Pacific coast inventors,
towards whom a liberal feeling seems to
prevail. The ready and just attention
which our clients' applications have lately
met, and the satisfaction universally ex-
pressed at the department in regard to the
complete preparation of our cases, afford
much gratification in return for our long
diligence in doing our duty conscientiously
and fully towards a noble class of patrons,
i. e., "INVENTORS."

Washington, June 3d, 1871.

"Casting Iron Pipe Like Bullets"

Such is the expression descriptive of
the new process just introduced at the
Pacific Iron Works of Goddard & Co., and
only brought into full blast this week.
The amount of work of this description
going on at this foundry is enormous, oc-
cupying three foundries, the Pacific and the
ones adjoining, and the late Brodie Foundry
which has also been purchased and fitted
up exclusively for making pipes by this
new process. From 15 to 20 tons of iron
are now melted daily for this purpose and
to carry on the ordinary business of the
above firm.

This process is new in the East as well as
here; it consists in the use of a mold or
flask of cast iron, in three parts, so ar-
ranged as to be used over and over again,
as a bullet mold is used in casting bullets;
instead of the common mold which re-
quires fresh modeling in founders' earth
at every casting. The inside of the mold
is coated with a preparation of fire clay
which effectually resists the action of heat,
over 600 having been made from one
flask without relining.

From six to eight castings are thus made
at every heat from one flask. After a
flask is poured, it is immediately opened,
the pipes taken out and a new core put in,
when it is ready for another pour.

The above process has been patented by
Messrs. Farrar & Whiting of Boston, and
the exclusive use of it for this coast has
been secured by the proprietors of the
Pacific Iron works. Whiting's Foundry
in Boston has been using the process for
the past six months with great success.

The application of this invention cre-
ates another new industry in our midst,
making it possible now to compete with
Eastern shippers in the production of cast
iron pipe. But the size practicable ranges
only from 3 to 10 inches in diameter.
Heretofore all such pipe has been shipped
from the East, none having been made on
this coast before Goddard & Co. com-
menced it this spring. It is used for
water chiefly, and gas.

The principal contract is that of the
Metropolitan Gas Co. for whom Goddard
& Co. have made to this time upwards of
7,000 feet of one size; the total contract
consisting of some two miles of 16 in.
main, and some 10 or 12 miles altogether,
of various smaller sizes.

The rate of production is about 100 ft. a
day of 8-inch pipe; but this will be in-
creased to 500 or 600 ft. of the various
sizes from 3 to 10 inches in diameter.
The large (16in.) main pipe has to be
made in the old way, but the work is be-
ing done also with an improved mold; the
thickness being nine-sixteenths of an inch,
suitable for a pressure of several hundred
feet head.

Water Delivering Facts—Pipe and Pressure Limits.

To set forth in brief what has been done
in a few well-known instances in Califor-
nia, in connection with suggestions origin-
ating in hydraulic mining, will be the
most appropriate means of supporting our
claim for having contributed new and
some most valuable additions to the sci-
ence of practical hydraulics. The neces-
sity for carrying water over or through
the greatest obstacles—over mountains and
across sheer gulches of 900 feet in depth,
up again on the opposite side, and so to
the locality where the water is needed, was
the engineers' incitement; the object, gold,
for the world's most urgent cry and de-
mand; the results being a solution in
the following facts, which are contributed
for the use of engineers and practical men.

I select from sections furnished by
Mr. Moore, of the Risdon Iron Works,
under whose hand and judgment the lead-
ing works of this sort, in the State, have
been executed, three leading ones, viz.,
the great Cherokee hydraulic mining pipe
in Butte County, the Spring Valley main

pipe from the San Mateo mountains to San Francisco, and one Spring Valley feeder; to which is appended a tabular statement of the dimensions of these and other pipes in actual present use, with facts touching durability, etc.

The Cherokee pipe is over two miles long, and has over 900 feet head and pressure; the Spring Valley is 14½ miles long, and has in several places over 300 feet, and in one 350 feet, pressure; and the pipe at Chinese Camp (not represented above) is 9,000 feet, or 1¾ miles, long, and has 800 feet pressure.

The thickness of iron gives a basis for computing the comparative cost of cast

out \$1,000 of gold per day. Quite a number of other similar new enterprises could be mentioned in this connection, were the subject in place; that at Cherokee involving, *en passant*, also a tunnel for outlet, which will require five years to run.

To make use of the above figure, the method would be: that if a 23-inch pipe for example, stands so much, a 12-inch pipe, or any other required, ought to bear so much less; the rule being that where the diameter is the same, the thickness of iron is as the height; or, where the height is the same, the thickness is as the diameter.

Examples of Durability.

1. Smartsville pipe, 16 in. diameter to

size of iron, and the distances between them, for both the longitudinal and the round seams:

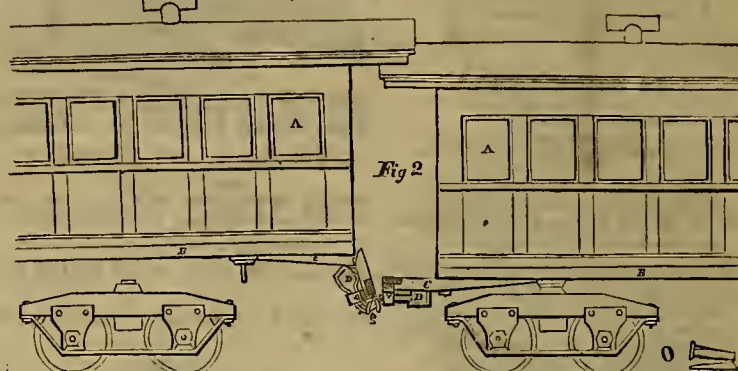
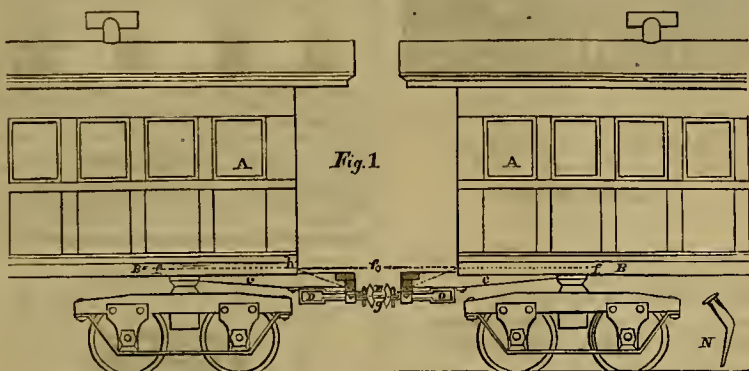
No. of Rivets	Diam. of Rivets	Distance between the Rivets.		Round Seams
		Long. Seam double riveted.	Vertical.	
14	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
12	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
11	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
10	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
9	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
8	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
7	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
6-16	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
5	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
4	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
3	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
2	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.
1	1/4 inch	1 1/4 inch	1 1/4 inch	1 1/4 in.

Cast iron has some advantages over wrought iron. While weighing more, it will last from three to ten times as long, the iron being, for some unknown reason, less liable to oxidation. It is, when

the moving train is equal to ten or twelve miles per hour, the ends of the bodies of such cars are liable to be broken, and the cars to pass into and through each other. This is "telescoping" the cars.

In a previous number of the Press, we described the Miller Trussed Platforms, Compression Buffers and Automatic Couplers, which are claimed to prevent any liability to this class, as well as other classes, of accidents, and which are certainly in the highest repute among railroad men. The following cuts serve to show the principle of telescoping, how it is caused by faulty construction, and how it is prevented by correct construction. They likewise show the principle of the Miller platform.

Fig. 1 shows how telescoping can occur



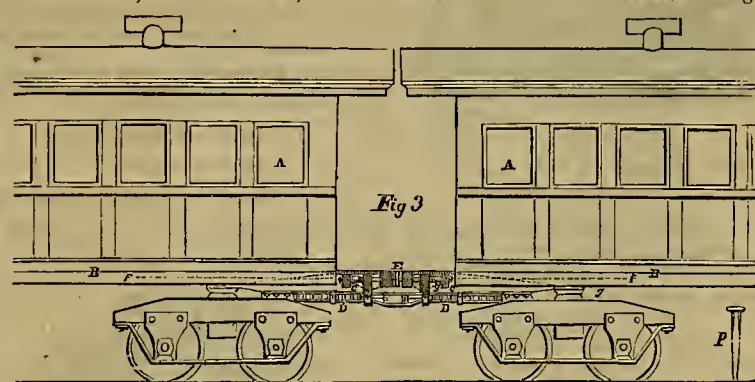
iron and of wrought iron pipe; ¾ wrought iron sustaining a pressure of 385 pounds to the square inch, for which 3-inch cast iron (nearly) would be necessary for safety.

A, carries 3,000 miners' inches with the head it has. The whole line of B is working perfectly, the limit run to being about half the pressure of the Cherokee pipe, arising from a necessity for a greater degree of safety.

The circumstances connected with the discovery of the practicability of such enormous heads in large conduit pipe, made of sheet iron, arose from the fact that in the engineers' formulas, and in practice everywhere, the tested safe pressure has always been accepted as the axiom; that is, the pressure a boiler would bear per square inch, for example, without danger of explosion; but it was found necessary in connection with mining conditions, such as freightage in the mountains of California, to use thin, portable and cheap pipe; on which, in hydraulicing,

18 iron, not painted inside, painted outside, 180 feet pressure, laid 1861-10 years.

2. Smartsville, 40 in. diameter, 3-16ths



iron, with ¾ alternately; 2,200 feet long, coated outside, laid 1861-10 years.

3. San Juan, 36 in. diameter, No. 12 and 14 iron, coated inside and out; pressure 55 ft.; running 10 years; estimated at 20 yrs.

broken, worth one cent per lb., while wrought pipe iron is not worth cutting up in California. Anything above 16 or 18 inches would in all cases be better wrought;

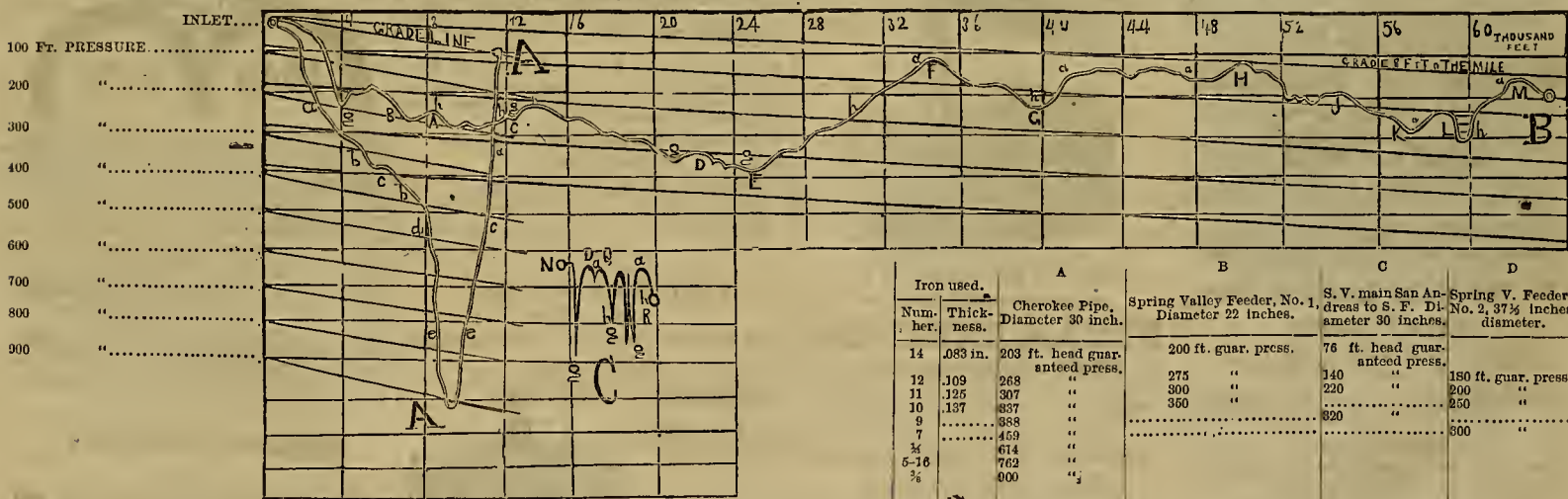
24 to 30 inches of cast iron would be too expensive.

The city distributing pipes of the Spring Valley Co. are of cast iron; usually about ¼ of an inch in thickness, which is four or

with the old construction. A A, are the car bodies; B B, the sills of the cars; c c, the platform sills; D D, the drawheads, which serve also as buffers; E, the coupling link; f f f, the center line of the sills of the cars; g, the point of contact; and h g, the line of depression from the center line, f f f, to the point of contact, g.

These platforms are located below the sills of the cars, and the buffers far below the platforms, bringing the point of contact at g, instead of f (directly above g). This crook in the line, f h g, will cause a broken platform, in a collision. The result is shown in Fig. 2. One car is raised up, by the broken platform, and made to strike the opposite car above its sills, where nothing but light studding and paneling is encountered in its course into and through the same.

Fig. 3 shows the proper method of construction of car platforms and the application of the coupling and buffing apparatus which accords with mechanical laws. Here A A are the car bodies; B B, the sills of the cars; c c, the platform sills; D D, a method of coupling without link or pin or substitute therefor, entirely automatic in its operation, and capable of being attached to any other kind; E, the buffer, located in the center-line, f f; g g, the course of the



a higher and higher head was gradually used—since no great harm could result from bursting—until the limits became pretty well established amongst miners at a far higher figure than was ascribed to iron for other purposes.

Spring Valley being near San Francisco and in a populous county, the risks of damage from bursting would be far greater than in the mountains; it is for that reason that the Spring Valley pipe is made so much stronger, as seen in the table.

In proof of the utility of investments in pipe for mining, the Cherokee water used in one mine, is at the present time washing

4. Chinese Camp, 11 in. diameter, delivering 300 miners' inches, Nos. 12, 14, 16 and 18 iron; 9,000 feet long; 800 feet pressure; laid in 1868-2 years.

5. Cherokee-6 months.

The fractional expressions designating pipe or sheet iron are fractions of an inch; the numbers, as "No. 9 iron," refer to the English ironmongers' gauge, an arbitrary system of designation, in which No. 11 is, for example, about equal to ¼ of an inch in thickness.

The following table gives items of importance concerning the riveting of the seams, the diameter of the rivets for each

five times the quantity of iron that would be necessary if the same were wrought instead of cast.

Telescoping.

One class of railroad accidents which has the most fearful effect on the mind, is telescoping—the running of cars into each other like the joints of a telescope. Any sudden checking of a passenger train in motion may, and too often does, under the old system of platforms, couplers and buffers, break off the platforms of the cars and permit the ends of the car bodies to come in contact; and if the speed of

truss rods that hold the platform in the line of the sills of the cars.

This shows the straight line method of buffing, which ensures that a platform cannot be broken off by a collision, as is possible with the previous construction.

The two methods may be plainly illustrated by taking a cut nail and bending it, as at N, Fig. 1, to correspond with the line, f h g, Fig. 1; this crooked nail cannot be driven into a soft pine board; a light blow with a hammer will break it, as shown at O, Fig. 2; while a straight nail—as P, Fig. 3—may be driven with hard blows into the hardest kind of wood.

This is the way in which Col. Miller shows the superior construction of his inventions. Letters to him may be addressed to E. Miller 231 Broadway, New York City.

Business Cards.

A NEW PATENT.

If you want a superior set of TEETH on Gold, Rose-Pearl, or Pyroloxine, that will not loosen while masticating, call on DR. BEERS, 109 Montgomery street, opposite the Occidental.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 509 MONTGOMERY STREET. 5v20-3m

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all Dealers throughout the World.

JOHN BOAHO, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

WM. BARTLING. **HENRY KIMBALL.**
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m **SAN FRANCISCO.**

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Ropes and Whales
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
25

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Mala.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

CO-OPERATIVE UNION
Grocery and Provision Store
Removed to 722 Market street, bet. Kearny and Dupont
SAN FRANCISCO.
apl-tf

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Bored and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.
LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,
No. 415 CALIFORNIA STREET.
25v20-3m

INTERNATIONAL HOTEL,
San Francisco, Cal.

This Favorite House is located on Jackson street, a
few doors west from Montgomery, offers the greatest in-
ducements for Families. The International Coach will
heat each Car Depot and Steamboat, plainly marked In-
ternational Hotel, to convey passengers to the Hotel
FREE, and to any part of the city at reasonable rates.
F. E. WEYGANT & H. O. PARTRIDGE,
24v22-3m **Proprietors.**

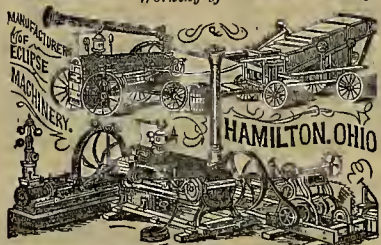
DR. F. HILLER,
Homeopathic Physician and Surgeon.]

Dr. Hiller pays particular attention to Operative Sur-
gery and Midwifery. Office—226 Post street, San Fran-
cisco. m4-6m

E. J. FRASER, M. D.,
SURGEON,
No. 108 Stockton street, S. F., Cal

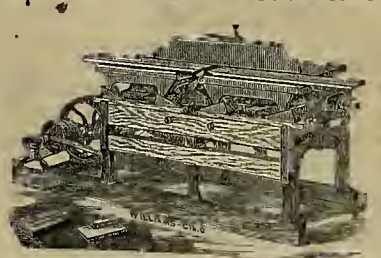
Eastern Advertisements.

OWENS, LANE, DYER & CO.
MANUFACTURERS OF
The Eclipse Saw Mills,
Combining **THREE PATENTED** Improvements
Essential to *The Well Working of* Circular Mills.



WITH ALL SIZES OF
PORTABLE & STATIONARY ENGINES,
Mill Gearing and Machinery,
With the celebrated
STEAM THRESHER, "California Chief."
For Description, Prices &c. address them at,
HAMILTON, Ohio, or ST. LOUIS, Mo

Improved Universal Wood Worker

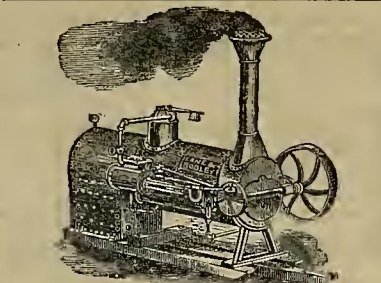


Jointing, Rabbeting, Beveling, Panel-Raising,
Gaining, Planing out Wind, Smoothing,
Planing, Circular Moulding,
Cornering,

BORING AND ROUTING,
Hand-Matching, Beading, Fluting, Sawing,
THICKENING, MAKING, MOULDINGS,
Sash, Door and Blind Work,
Car Furniture, Etc., Etc.

THE MOST USEFUL,
Economical and Labor-Saving Machine of Modern
Invention.

Send for Circular, Etc., to
McBETH, BENTEL & MARGEDANT,
Manufacturers of Wood Working Machinery, Etc.,
HAMILTON, OHIO.
m11-6m



LANE & BODLEY,
STATIONARY AND PORTABLE
STEAM ENGINES,
PREMIUM CIRCULAR SAW MILLS
—AND—
MILL MACHINERY.

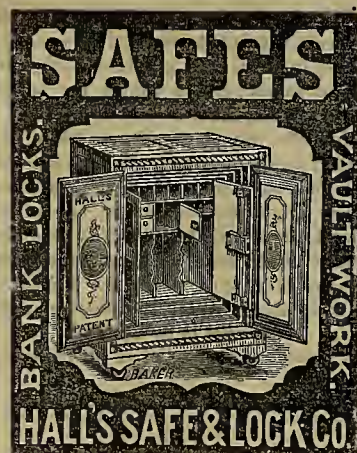
PATENT INDEPENDENT AND SIMULTANEOUS
WROUGHT IRON HEAD BLOCKS,
Patent Lath Machinery,
SHINGLE MACHINES.
SAFETY POWER ELEVATOR.

LANE & BODLEY'S PATENT
POWER MORTISER,
BLANCHARD'S SPOKE LATHE,
Car, Hub, Spoke, Wagon, Furniture, Sash & Blind Machinery,
SHAFTING OF ALL SIZES KEPT IN STOCK.

The Lane & Bodley Patent Hangers,
With Self-Lubricating Journal Boxes,
WE HAVE

Three Hundred Pulley Patterns
ONE HUNDRED HANGER PATTERNS,
OF UNIFORM STYLE AND WEIGHT.

Descriptive Circulars & Price Lists furnished on application to
LANE & BODLEY,
JOHN & WATER STREETS, CINCINNATI.



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO,
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks sur-
pass any Locks made in point of Finish, Security and
Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by ex-
perts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the
Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improve-
ments, and consequently possess Superior Advantages,
in point of Security, to any Safes made.

AN INSPECTION WILL PROVE
the above assertions.

SAFES Delivered in San Francisco at Cincinnati
Prices. Send for Catalogue. m11-6m



SOLE MANUFACTURERS

Bolthoff's Patent Pressed Shoes and Dies,
costing no more and wearing one half longer than any
shoe before introduced.

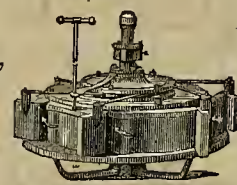
Bolthoff's Stem Guide and Stuffing Box.
Bolthoff's Ball Pulverizer, the most complete machine
for dry crushing in use, doing easily, the work of ten
stamps with one quarter the power.

Stamp Mills with all late
Improvements.

Send for prices and information. Address
C. F. HENDRIE, Prest, R. J. CORY, Secy & Treas.
1v22-3m cww **Council Bluffs Iowa.**
[ESTABLISHED 1820.]

STOUT, MILLS & TEMPLE,
PROPRIETORS OF THE
GLOBE IRON WORKS,
DATTON, OHIO.

Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers



American Turbine Water Wheel,

MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. m11-6m

Established 1843.
LOUIS ESPENSCHIED,
WAGON MANUFACTORY,
No. 1815 Broadway, St. Louis, Missouri.
3v22-6ms

Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,

ENGINEERS AND BUILDERS.

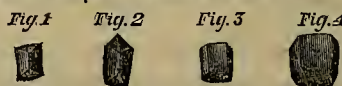
NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of
Railway Companies, and Engineers having charge of
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Via-
ducts, etc., which they have either constructed or are
prepared to construct. A copy will be mailed on appli-
cation to our address, No. 410 Walnut Street, Phila-
delphia. ap15-ly

DICKINSON'S
Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and
set for Dressing Mill-Burrs, Emery-Wheels, Grindstones,
Conglomerate, Drilling Rock, Sawing or Working Stone,
Truing up Hardened Steel, and for other mechanical
purposes. Also Glaziers' Diamonds. See Scientific
American, July 24th, Nov. 20th and 27th, 1869; Engi-
neering and Mining Journal, Jan. 17th, 1871; Journal of
the Franklin Institute, Philadelphia, June, 1870. For
Circulars descriptive, and Prices, send stamp to
apl5-6m **J. DICKINSON, 64 Nassau St., N. Y.**

Miscellaneous.



Of a far Higher Class than any other proprietary
medicine of the day stands

Tarrant's Effervescent Seltzer Aperient,
And for this reason, it is an exact counterpart of one of
the most valuable medicines in the world. We refer to
the great Seltzer Spring of Germany, to which thousands
of the dyspeptic, the bilious, the rheumatic, and the
victims of venal diseases resort annually, and return to
their homes convalescent or cured. The Aperient is
one of the first, and by far the most successful, of all
the efforts made to reproduce, in a portable form, the
popular mineral waters of Europe. SEE THAT YOU
PURCHASE ONLY THE GENUINE ARTICLE.
SOLD BY ALL DRUGGISTS.



The "PAIN KILLER" may justly be styled the great medi-
cine of the world, for there is no region of the globe into
which it has not found its way, and been largely used and
highly prized. Moreover, there is no claim to which it has
not proved to be well adapted for the cure of a considerable
variety of diseases; it is a speedy and safe remedy for burns,
scalds, cuts, bruises, wounds and various other injuries, as
well as for dysentery, diarrhea, and bowel complaints gen-
erally, it is admirably suited for every race of men on the
face of the globe.

It is a very significant fact, that notwithstanding the long
period of years that the "Pain Killer" has been before the
world, it has never lost one whit of its popularity, but on the
contrary, the call for it has steadily increased from its first
discovery, and at no previous time has the demand for it
been so great, or the quantity made so large, as it is
to-day.

Another significant fact is, that nowhere has the Pain
Killer ever been in higher repute, or been more generally
used by families and individuals, than it has been here at
home, where it was first discovered and introduced. That
the Pain Killer will continue to be, what we have styled it,
THE GREAT MEDICINE OF THE WORLD, there cannot be the
shadow of a doubt.—*Providence Advertiser.*

Manganese ! Manganese !

We have on hand the Best and Purest
articles of Powdered Black Oxide of Mangan-
ese ever sold on this coast. Price, Sixty
Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,
CYANIDE OF POTASS,
And Chemicals of all kinds at Lowest Prices.

FOR SALE BY
R. H. McDONALD & CO.,
Corner First and Market Streets, San Francisco.
22v17-3m

HOOKER'S **Lift and Force.**
Improved
DEEP-WELL Pump
112 and 114 California street, San Francisco.

Pacific
Insurance Company.
No. 122 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
 W. M. ALVORD, Vice-President.
 A. J. RALSTON, Secretary.
 A. BAIRD, Marine Secretary.

For Steam Pipes & Boilers **Hair Felting**

For sale by BERRY & PLACE, Machinery Depot, 112 California Street, San Francisco.

Leather Belting, Boiler Felt, Belt Stuffs, Steam Packing, Self Oilers, Linen Hose, Tube Scrapers, Lace Leather, Planing Mill Supplies, Etc.,
 For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

Page's **Belting**
 Patent-Tanned Leather

For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

CLARK'S LINEN HOSE
 60 DUNDAS ST. BOSTON

For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

Sturtevant's **BLOWERS**
 Pressure

For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.
MORSE'S PATENT.

BOILER TUBE CLEANER.
 For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

Blake's **PUMPS**
 Patent Steam

For sale by BERRY & PLACE, Machinery Depot, 112 Cal. St., S. F.

MAGAZINES.	P. An.	W. E. LOOMIS,
Harper's.....	\$4 00	News Dealer
Atlantic.....		AND STATIONER,
Godey.....		S. E. corner of Sansome and
New York Ledger.....		Washington streets,
Blackwood.....		SUPPLIES ALL
Hours at Home.....	3 00	
Good Words.....		
Peterson's.....		
Arthur.....		
Lady's Friend.....		
Harper's Weekly.....	5 00	Eastern Periodicals,
Chimney Corner.....		BY THE
Literary Album.....		Year, Month, or Number.
London Society.....	6 00	
All the Year Round.....		
London Ill. News.....	15 00	

GOLD-SAVING
Silver-Plated Amalgamating Plates

FOR MINERS AND MILL MEN,

At San Francisco Plating Works, 655 Mission Street, San Francisco.

Goods of every description Plated.
 Old Goods Re-plated.

E. G. DENNISTON, Proprietor.
 24 1/2-23m

The Angel's Quartz Mine



Shaft is over 400 Feet Deep, and is kept free from water in its lowest level by the

BLAKE STEAM PUMP

Sold by BERRY & PLACE,
 112 California St., San Francisco. 4722

O. J. KING, B. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
 MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,

KETCHUPS, SAUCES,

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,

Between Jackson and Pacific, San Francisco, [1871]



JOHN WRIGHT,

MANUFACTURER OF ALL KINDS OF

MINERS' AND RAILROAD PICKS,

All Adze-Eyes, of Superior Quality.

13 AND 15 FREMONT STREET, AT NELSON & DOBLE'S, SAN FRANCISCO.

List of Prices of Picks.

No. 1 Round Eye Surface, 4 lbs.....	\$18	No. 17 Drifting..... 4 1/2 lbs.....	\$20
No. 2 " " " 4 1/2 lbs.....	18	No. 18 " " " 5 lbs.....	20
No. 3 " " " 5 lbs.....	18	No. 19 " " " 5 1/2 lbs.....	22
No. 4 " " " 5 1/2 lbs.....	20	No. 20 " " " 6 lbs.....	24
No. 5 " " " 6 lbs.....	22	No. 21 Poll " " " 4 lbs.....	20
No. 6 " " " 6 1/2 lbs.....	24	No. 22 " " " 4 1/2 lbs.....	20
No. 7 " " " 7 lbs.....	24	No. 23 " " " 5 lbs.....	22
No. 8 Flat Eye Surface, 4 lbs.....	20	No. 24 " " " 5 1/2 lbs.....	22
No. 9 " " " 4 1/2 lbs.....	20	No. 25 " " " 6 lbs.....	24
No. 10 " " " 5 lbs.....	20	No. 26 " " " 6 1/2 lbs.....	30
No. 11 " " " 5 1/2 lbs.....	22	No. 27 " " " 7 lbs.....	30
No. 12 " " " 6 lbs.....	22	No. 28 Coal " " " 2 lbs.....	12
No. 13 " " " 6 1/2 lbs.....	24	No. 29 " " " 2 1/2 lbs.....	12
No. 14 " " " 7 lbs.....	24	No. 30 " " " 3 lbs.....	14
No. 15 Drifting..... 3 1/2 lbs.....	18	No. 31 " " " 3 1/2 lbs.....	14
No. 16 " " " 4 lbs.....	18		

Also, Pick Eyes, Ready for the Steel, for Blacksmiths,

WHICH WILL BE SOLD CHEAP.

PRICES, FROM \$14 TO \$18.

WALTHAM WATCHES.

In soliciting anew the public patronage of WATCHES of domestic production, the AMERICAN WATCH COMPANY respectfully represent:

That no fact in the history of manufactures is more completely demonstrated than that the best system of making Watches is the one first established by them at Waltham. That system always had the warrant of reason and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been ample and satisfactory. It is admitted on every hand—the evidence of daily observation and common repute—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing more is needed, but that their sizes, shapes and appearance should suit the tastes of the people. As to all these conditions the American Watch Co. are now fully prepared to answer the exacting of the market. They confidently assert there is no longer any need for such reasons to import watches of any description whatever. Every size in ordinary demand, every shape and every variety of finish and decoration, may now be had. And as to price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

The Most Economical as well as the Most Reliable,

And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the Latest Improvements in design and finish, and evince the rapid progress the Company is making toward perfection in the art. Among these the new small size Watch, for Boys and young gentlemen, is to be especially noted. A very low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the means of boys of all classes. Price being considered,

No such Watch, in Quality and Beauty,

Has ever, in any country, been produced.

The "CRESCENT-STREET" FULL PLATE WATCH, added during the last year, is now made either with or without stem-winding and setting attachment. This Watch, in either form,

The Company Challenges all Manufacturers of all Countries

To heat or equal for its price. It is made with all the latest improvements in every part—improvements which improve—and which not only make it better for its purpose as a timekeeper, but will make it the great favorite with Watchmakers. This, the highest grade of full plate Watches made in this country, in size and appearance, in finish, and general excellence, is especially intended for and recommended to business men, and in particular to Railway and Expressmen, to constant travelers—in fact, to all live men who must be told by their Watches the correct time of day whenever they want it. All such men should have the

"American Watch Co., Crescent Street."

Counting on such destination for this variety of their manufacture, the company devote the greatest care to its construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake upon its success.

For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

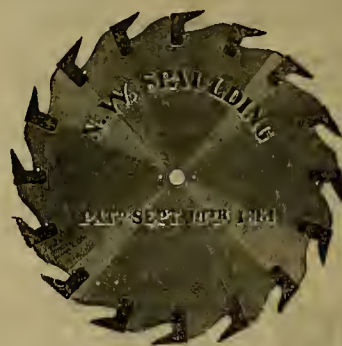
ROBBINS & APPLETON,

General Agents for American Watch Company, 182 Broadway, New York.

134-aa

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
 Corner Mission and Fremont Streets,
 MANUFACTURERS OF
 Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
 Church and Steamboat Bells,
 TAVERN AND HAND BELLS, GONGS,
 FIRE ENGINES, FORCE AND LIFT PUMPS.
 Steam, Liqueur, Soda, Oil, Water and Flange Cocks,
 and Valves of all descriptions, made and repaired.
 Hose and all other Joints, Spelter, Solder and Copper
 Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil
 Globes, Steam Whistles. HYDRAULIC PIPES AND
 NOZZLES for mining purposes. Iron Steam Pipe furnished
 with Fittings, etc. Coupling Joints of all sizes,
 Particular attention paid to Distillery Work. Manufacture
 of "Garratt's Patent Improved Journal Metal."
 Highest Market Price paid for OLD BELLS, COPPER
 AND BRASS. 6-11
 W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.



Nos. 17 and 19 Fremont Street, near Market,
 MANUFACTURER OF

SPAULDING'S
Patent Tooth Circular Saws.
 They have proved to be the most durable and economical
 Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of
Portable & Stationary Saw Mills.

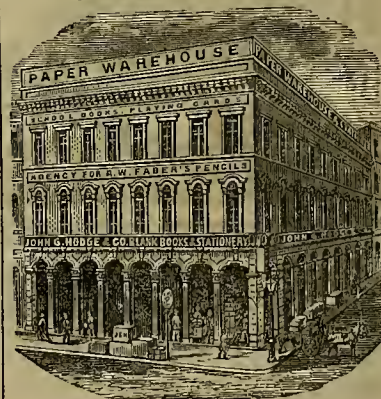
MILLS FURNISHED AT SHORT NOTICE
 At the lowest Market Prices

H. ROYER.
 Manufacturer of LEATHER BELTING AND LACING,
 MADE OF FULLED RAWHIDE. Factory, South Park Mills,
 Brannan street, bet. Third and Fourth, San Francisco.
 Sole Agents for H. Royer's Lacing Leathers. ns

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS.



KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
 Cartridge Papers, &c., &c

Blank Books made to order from Crew
 Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied
 Agents for A. W. Fabers genuine Lead Pencils.
 327, 329 & 331 Sanson St. San Francisco.
 19v2leonly

BAIRD'S
BOOKS
 FOR PRACTICAL MEN.

My new revised and enlarged Catalogue of PRACTICAL
 AND SCIENTIFIC BOOKS, complete to April 15,
 1871, 94 pages, 8 vo., will be sent, free of postage, to any
 one who will favor me with his address.
 HENRY CAREY BAIRD,
 Industrial Publisher, 406 Walnut St.,
 Philadelphia.

PSYCHOMANCY.—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Reasonation or Soul Charming, 400 pages. Full instructions to use this power over men or animals at will, how to Memorize, become Trance or Writing Mediums, Divination, Spiritualism, Alchemy, Philosophy of Omens, and Dreams, Brigham Young's Harem, Guide to Marriage, &c.; 200,000 sold. Sent by mail in cloth for \$1.25, paper covers, \$1.00. The Philadelphia Star speaking of the book says it is a sufficient guarantee of the merits of the work. Mrs. Evans has spent \$50,000 already in advertising and getting out this extraordinary book. Skeptics in Psychology read and be convinced of this wonderful occult power.

NOTICE.—Any person willing to act as Agent will receive a sample copy FREE. As no capital is required, all desirous of genteel employment should send for the work, enclosing 10 cents for postage, to T. W. EVANS, 43 S Eighth street, Philadelphia, Pa. mad-jan3t

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Coconos, but we doubt whether enough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Coconos above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homoeopathic Cocoa, and Soluble Chocolate, Steam Mills—Briek Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-1y

Dewey & Co., U. S. and Foreign Patent Solicitors and Counsellors, Scientific Press Office.
Principal Agency in the Pacific States. Established 1860.

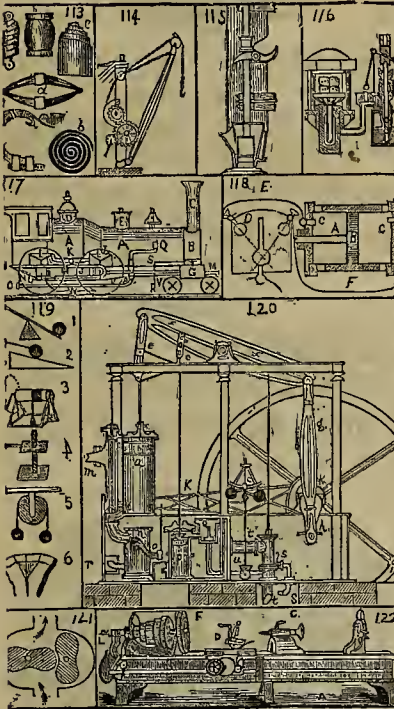


Plate V of Illustrated Mechanical Movements, described in Dewey & Co's, 43 page circular of Information for Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

DEWEY & CO.,
Patent Agents, No. 414 Clay st., San Francisco.

Eighth Industrial Exhibition,

UNDER THE AUSPICES OF
THE MECHANICS' INSTITUTE,
San Francisco,

WILL OPEN
Tuesday, August 8, 1871,

And continue for four weeks, in the Pavilion of the Society on Union Square, in the city of San Francisco.

APPLICATION FOR SPACE can be made at the Library of the Mechanics' Institute any day, between the hours of 1 and 9 P. M., or by letter to the Corresponding Secretary, J. H. KIRBY.
Mr. J. H. GILLMORE is authorized to visit those who intend to exhibit from this city. fe18-16p-tf

Connecticut Mutual Life
INSURANCE COMPANY,
OF HARTFORD, CONN.
Incorporated 1846.

ASSETS, - - - - - OVER \$30,000,000.
Surplus over \$8,000,000,
INCOME FOR 1869, - - - - - \$8,978,751 25
Appropriated for Dividends payable in 1870, \$2,300,000.
Total Claims by Death paid to date, over \$2,566,000. Total Dividends Paid to Date, over \$5,700,000.

Ratio of Expense to Total Income 8.89, Only.
A Purely Mutual Company.
All its surplus is equitably divided among the Policy-Holders in
ANNUAL DIVIDENDS,
Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making

ALL POLICIES NON-FORFEITING.
OFFICERS:
JAMES GOODWIN, President. ZEPHANIAH PRESTON, Vice-President.
EDWIN W. BRYANT, Actuary. WOODBRIDGE S. OLMSTEAD, Secretary.
LUCIAN S. WILCOX, M. D., Medical Examiner.

General Agent for the Pacific Coast.
JAMES B. ROBERTS, 315, California Street, San Francisco, Cal.

CALIFORNIA CHEMICAL PAINT COMPANY,
MANUFACTURERS OF
AVERILL'S CHEMICAL PAINT, OF THE
Purest White, and 100 Different Shades,
MIXED READY FOR APPLICATION.
This is the ONLY PAINT OF COMMERCE manufactured, being always held in solution by its peculiar chemical combination, and sold by the gallon. It is warranted not to peel, crack, nor chalk off; has a greater body and covering property, and will last twice as long as the best of other Paints, with a fine, hard, glossy surface, impervious to the atmosphere, and extremely durable.
Office, 408 California Street.
MANUFACTORY, Corner Fourth and Townsend Streets.
ap8-3m G. W. OSBORN, } Agents.
C. F. BROWN, }

THE GIANT POWDER COMPANY
Are now manufacturing besides the famous regular
GIANT POWDER, A NO. 2 GIANT POWDER,
Somewhat slower in its Explosion, which we recommend for
BLANK BLASTING, COAL MINES,
AND FOR ALL SUCH WORK WHERE THE ROCK IS NOT VERY HARD.
It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.
Price. 50 Cents per Pound.
The sales of both grades increase very fast, which is the best proof of their superiority over other explosives.
20v22-3m16p **BANDMANN, NEILSEN & CO.,**
General Agents, No. 210 Front Street.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.
ash Capital, - - - - - \$300,000
OLD COIN
OFFICE, 436 CALIFORNIA STREET.
Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSHILD, Secretary. 20v17

ARTIFICIAL LIMBS.
A. A. MARKS, No. 675 Broadway, N. Y. City,

the inventor and authorized United States Government manufacturer of the celebrated first premium Artificial Limbs with Rubber Hands and Feet, has published a new and enlarged edition of his Illustrated Pamphlet, of importance to all who have suffered amputations, especially to officers and soldiers who lost their limbs in service. Copies sent free to applicants! 21v1-13ts-11tr

Hubbard, Lippincott, Bakewell & Co.,

EMERSON'S NEW PATENT
VALVE TOOTHED
CIRCULAR SAWS
MANUFACTURERS.
J. E. Emerson's New Patent Flange Toothed Circular Saws, are superceding all others.
Crosby's Patent Gang Saw Buckle, Lippincott & Tuttle's Patent Cross Cut Saws, Davis' Patent Double Cut Gang Saws (cuts both ways); and all of the celebrated brands of SAWS formerly manufactured by both HUBBARD BRO. & CO. and LIPPINCOTT & CO. Also, SHOVELS, AXES AND SPADES.
All orders from this Pacific Coast will receive special attention and be forwarded with dispatch.
Our extensive facilities enable us to furnish our Goods at the
Lowest Market Prices,
And all Warranted of SUPERIOR QUALITY.
For Descriptive Catalogues and Price Lists address
HUBBARD, LIPPINCOTT, BAKEWELL & CO.,
mail-16p-tf Pittsburgh, Pa.

ACTIVE MEN!
With Experience in Canvassing business, can now obtain lucrative and permanent employment by DEWEY & CO., Patent Agents and Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, No. 414 Clay street, S. F.
THE
QUARTZ OPERATOR'S HAND-BOOK,
BY P. M. RANDALL.
REVISED AND ENLARGED EDITION.
CONTENTS:
APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power.
ASSAY—Mechanical Assays, Dry Way of Assay, Humid Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur.
BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW-PIPE—EXAMINATION OF MINERALS.
GOLD—Treatment of Ore Containing Gold: By Smelting; By Amalgamation; By Chlorination.
MILL—STAMP—SILVER—GOLD.
MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of.
MINES—VENTILATION OF.
QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Pappets, Cams, Gum-Stuff, Stamps, Dies, Screens, Guides, Grinders and Amalgamators, Wheeler & Randall's Excelsior Grinder and Amalgamator, Separators, Wheeler & Randall's Conoidal Separator, Concentrators, Wheeler & Randall's Eureka Concentrator, The Wheeler and Randall Tabular Concentrator and Amalgamator, Retorts, Gold Retorts, Silver Retorts, Crucibles, Ingot Molds.
REDUCTION AND CONCENTRATION OF ORES—DRY WAY.
ROASTING—Heaps, Furnaces.
SMELTING
SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting; By Solution; By Amalgamation; Extraction of Silver from coarse Copper, Extraction of Silver from Copper Matte, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plate, Cupellation of Gold and Silver, Refining of Gold and Silver.
TABLES.

Sold, Wholesale and Retail, at publishers' rates, by DEWEY & CO., Proprietors SCIENTIFIC PRESS, Patent Agents, Engravers and Publishers, San Francisco. Cloth bound, 175 pages. Price, \$2.

MINING BUREAU
OF THE
PACIFIC COAST.
Authorized by the Miners' Convention, held at Sacramento, January 31, 1871.
Parties desirous of having Mining Property REGISTERED and EXAMINED may apply personally or by letter to
J. BERTON,
Vice-Consul of France, President,
Sacramento, Cal.
Or to
COL. HARRY LINDEN,
Member of the Board of Directors,
S. W. corner California and Montgomery streets, Room 3, San Francisco, Cal.
27 Copies of By-Laws furnished upon application. 22v-18-1f

Mountain City Mining Company—Location of mines, Copo District, Elko County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of June, 1871, an assessment of Twenty-five (25) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 206 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 18th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 8th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
T. B. WINGARD, Secretary. 24v1-4v
Office, 206 Front street, San Francisco.

Salamander Gold and Silver Mining Company—Location of works, Leon's Ranch, Mill Valley District, Calaveras County, Cal.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:
Names. No. Certificate. No. Shares. Am't.
Jeremiah Dwyer.....171 50 \$17 50
Jeremiah Dwyer.....172 20 7 00
Jeremiah Dwyer.....173 20 7 00
Jeremiah Dwyer.....174 10 3 50
Jeremiah Dwyer.....175 5 5-19 1 84
Christopher Dunker, Trustee, 17 10 3 50
Christopher Dunker, Trustee, 18 10 3 50
R. W. Dowling, balance of .316 80 5-19 28 09
Henry Gremke, Trustee.....223 20 7 00
Christopher Hahn.....225 10 3 50
John Kahrs.....311 6 2 10
Johanna Lysett, balance of . 88 1 8-19 50
James H. Morgan.....31 10 3 50
James Murphy, balance of . 241 10 10-19 3 67
James McCormick.....238 5 1 75
R. F. Ryan.....216 5 1 75
Duncan Ross, Trustee.....166 45 15 75
Duncan Ross, Trustee.....239 10 3 50
Duncan Ross, Trustee.....270 25 8 75
Duncan Ross, Trustee.....274 20 7 00
Duncan Ross, Trustee.....310 155 5-19 54 34
Geo. W. Smith, balance of .308 2 70
Dr. O. P. Warren.....245 5 1 75
Dr. O. P. Warren, balance of .298 2 70
An in accordance with law and an order of the Board of Trustees, made on the 4th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Joseph Marks, No. 604 California street, on Monday, the 10th day of July, 1871, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
E. J. PFEIFFER, Secretary.
Office, 210 Post street, San Francisco. 25v22-3v

Taylor Mill and Mining Company—Location of works, Georgetown District, El Dorado County, State of California.
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of June, 1871, an assessment of ten (10) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 4th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
SAML S. MURPHY, Secretary.
Office, 520 Montgomery street, over Sather & Co's Bank, San Francisco, Cal.

Mining and Other Companies.

Owing to the late necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Altona Number One Gravel Mining Company, Alta Hill, Grass Valley, Cal.

The first annual meeting of the stockholders in the above named Company will be held at their office, No. 28 Merchants' Exchange, San Francisco, on Thursday, July 6th, 1871, at 2 o'clock p. m., for the election of Trustees, and the transaction of other business. By order of the President. DAVID WILDER, Secretary. Jun-5-w

Altona Gravel Mining Co.—Location of works, Alta Hill, Grass Valley, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment No. 2, of 25 cents per share, levied on the 23d day of May, 1871, the several sums set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
O W Boynton.....	20	400	\$50 00
C W Boynton.....	104	50	12 50
Aaron Hooper.....	117	200	50 00
R W Sterling.....	64	25	6 25
R W Sterling.....	68	20	5 00
R W Sterling.....	69	20	5 00
R W Sterling.....	72	10	2 50

And in accordance with law, and an order of the Board of Trustees made on the 23d day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at the auction room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the 19th day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale.

DAVID WILDER, Secretary.
Office, No. 28 Merchants' Exchange, California street,
San Francisco, Cal. 26v22-3t

Eagle Quicksilver Mining Company—Location of works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June 1871, an assessment of twenty dollars per share was levied upon the mines of said Company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No 5, No 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 9th day of August, 1871, shall be deemed delinquent, and will be duly advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco,
California. 26v22-3t

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of April, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
S. Card.....	10	10	\$25 00
S. Card.....	39	5	12 50
Wm. H. Sharp.....	35	10	25 00
Wm. H. Sharp.....	36	10	25 00
N. Gardner.....	104	5	12 50

And in accordance with law, and an order of the Board of Trustees, made on the 28th day of April, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Kincaid Flat Mining Company, 220 Clay street, San Francisco, Cal., on the 1st day of July, 1871, at the hour of 10 o'clock a. m., to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

N. C. FASSETT, Secretary pro tem.
Office, 220 Clay street, San Francisco, Cal. Jun-10-4w

Marcelina Silver Mining Company—Location of works, Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees, of said company, held on the 2d day of June, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in U. S. gold and silver coin, to the Secretary, Room 21, Hayward's Building, 419 California Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 11th day of July, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, Aug. 1st, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building 419 California Street, San Francisco, Cal. 23v22-4w

Sierra Iron Company—Location of Works, Sierra and Plumas Counties, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the 17th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

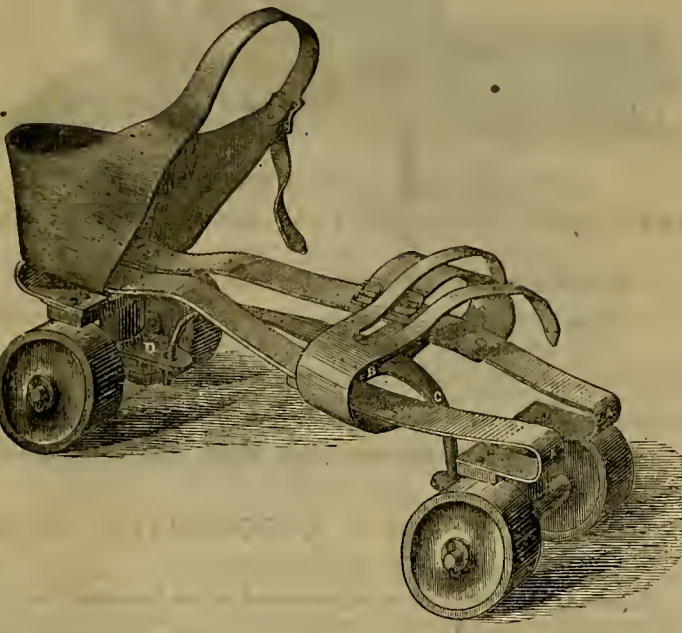
Names.	No. Certificate.	No. Shares.	Amount.
L E Pratt.....	14	500	\$300 00
L E Pratt.....	15	500	300 00
L E Pratt.....	16	500	300 00
L E Pratt.....	17	500	300 00
Mary A Starkweather.....	18	10	6 00
Jos B Starkweather.....	19	10	6 00
Josephine Starkweather.....	20	10	6 00
Harriet J Starkweather.....	21	10	6 00
Mary E Saffery.....	22	180	108 00
Mary E Saffery.....	42	5	3 00
Mary E Saffery.....	43	5	3 00
Mary E Saffery.....	44	5	3 00
Mary E Saffery.....	45	5	3 00
Mary E Saffery.....	46	10	6 00
Mary E Saffery.....	47	10	6 00
Mary E Saffery.....	48	10	6 00
Mary E Saffery.....	49	10	6 00
Mary E Saffery.....	50	20	12 00
Mary E Saffery.....	51	100	60 00
James S Day.....	29	50	30 00
R A Cochran.....	32	500	300 00
R A Cochran.....	33	500	300 00
R A Cochran.....	34	500	300 00
R A Cochran.....	35	250	150 00
R A Cochran.....	36	250	150 00
A F Sawyer.....	37	50	30 00
Leverette S Davis.....	55	300	180 00
G Hilton Scribner.....	58	50	30 00
Thos Mansfield.....	67	300	180 00
Wm Mansfield.....	68	50	30 00
Wm Mansfield.....	69	50	30 00
D J Sydow.....	60	100	60 00

And in accordance with law, and an order of the Board of Trustees, made on the 17th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company No. 428 California street, San Francisco, Cal., on the 20th day of July, 1871, at the hour of 12 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CALEB T. FAY, Secretary.
Office, room No. 7, 428 California street. 26v22-3t.

BOONE'S C-SPRING ROLLER SKATE.

PATENT GRANTED.



This SKATE surpasses in Elasticity, Durability and Ease of Operation, any other Skate in existence. Its superiority has been proved wherever it has come in competition with any other Roller Skate.

FOR DESCRIPTION SEND FOR DESCRIPTIVE CIRCULAR.

Warranted to run longer without requiring to be repaired than any other Skate.

Owners of Rinks will find it the most profitable as well as the most satisfactory to their patrons. The patentees guarantee the right to run this Skate to purchasers of rights for the full term of the patent, and

Warrant it to be no Infringement on any Existing Patent.

State, County, Town and Rink Rights for sale at reasonable terms.

Apply by letter or in person to

UNDERHILL BOYNTON,

105 Montgomery Street, S. F., Cal.,

General Agent for the United States.

NIAGARA STEAM PUMP WORKS.

FIRST PREMIUM

American Institute, 1867 and 1870.

CHARLES B. HARDICK,

23 Adams Street, Brooklyn, N. Y.

SOLE MANUFACTURER

Hardick's Patent Double-Acting
Steam Pump
and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND
FRANCE. SEND FOR CIRCULAR.

23v26t-cow

Phelps' Patent Animal Trap.



FOR OOPHERS, SQUIRRELS, RATS, CATOYES,
and other "Varmints."

This Trap, as may be seen, is of simple construction,
not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children
THE CHEAPEST AND BEST YET INVENTED. Price
50 cents. By mail, prepaid (to places where express
charges are high), \$1. A liberal discount to clubs or
dealers who buy by the dozen. Address the inventor
and manufacturer.

D. V. PHELPS,
Ally-awpb San Leandro, Alameda County, Ca

The Patent Wood Horse Collar

AND HAME COMBINED

To the Best, Most Convenient and Durable Collar ever
used. Will last ten times as long as the Leather Collar.
Always keeps its place and shape. No stitches to burst,
or stuffing to press out. Wood, being cool, never
SWEATS or GALLS the animal. Keeps the Neck and
Shoulders free from Sores in the hottest of weather.

Warranted to Cure Horses with the Sorest
Shoulders

In Three Weeks, Working Every Day.

For further particulars as to price of Collars, etc
apply to or address WILDMAN & MARBLE,
No. 30 California Street, San Francisco,
Proprietors for the Pacific Coast.

Agents Wanted. 19v22-2m

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good
SAUCE. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire Sauce" to their
own inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask for LEA &
PERRINS' SAUCE, and see that their name
is upon the wrapper, label, stopper and
bottle.

Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and label
of which the names of Lea and Perrins have
been forged, and for export by the Proprietors, Worces-
ter, Cross and Blackwell, London, &c., &c., and by
Grocers and Oilmen universally. Agents, CROSS &
CO., San Francisco. 1v22-lycwo

CAUTION.

BETTS'S CAPSULE PATENTS

are being infringed by importation of Capsules made in con-
travention of his rights, which necessarily are numerous,
BETTS being the original inventor and Sole Maker in the
United Kingdom.
L. WHARE ROAD, CITY ROAD, LONDON, AND
BORDAUX, FRANCE.

Latawana Mining Company, near Hamil-

ton City, White Pine, State of Nevada.
Notice.—There are delinquent upon the following
described stock, on account of assessment levied on the
16th day of May, 1871, the several amounts set opposite
the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
D. M. Hosmer.....	11	10	\$ 2 00
D. M. Hosmer.....	14	50	2 00
Joseph Brewster.....	55	1	1 00
Joseph Brewster.....	173	100	20 00
Joseph Aton.....	57	2	40
J. A. Alexander.....	68	2	40
P. Conklin.....	136	200	40 00
P. Conklin, Trustee.....	210	100	20 00
P. Conklin, Trustee.....	211	50	10 00
P. Conklin, Trustee.....	212	100	20 00
P. Conklin, Trustee.....	213	100	20 00
P. Conklin, Trustee.....	214	100	20 00
P. Conklin, Trustee.....	215	100	20 00
P. Conklin, Trustee.....	216	100	20 00
P. Conklin, Trustee.....	217	100	20 00
P. Conklin, Trustee.....	218	100	20 00
P. Conklin, Trustee.....	219	100	20 00
P. Conklin, Trustee.....	220	50	10 00
P. Conklin, Trustee.....	221	17	3 40
P. Conklin, Trustee.....	222	50	10 00
P. Conklin, Trustee.....	223	50	10 00
P. Conklin, Trustee.....	224	50	10 00
P. Conklin, Trustee.....	225	50	10 00
P. Conklin, Trustee.....	226	50	10 00
S. E. Holcombe.....	127	10	2 00
M. M. Baldwin.....	114	10	2 00
M. M. Baldwin.....	115	100	20 00
E. W. McKinstry.....	202	168	33 60
E. W. McKinstry.....	208	300	60 00
A. P. Everett.....	269	75	15 00
John Clement.....	232	45	9 00
George A. Harris.....	171	100	20 00
George A. Harris.....	172	100	20 00
George A. Harris.....	173	100	20 00
George A. Harris.....	174	100	20 00
L. D. Simpson.....	233	50	10 00
E. B. Wilder.....	161	1000	200 00
John H. Boden.....	162	100	20 00
John H. Boden.....	163	100	20 00
D. W. White.....	168	100	20 00
C. H. Burton.....	208	164	32 80
Richard Bradward.....	170	20	4 00
Boits & Wise.....	249	400	80 00
George F. Dyer.....	177	100	20 00
John G. Ayers.....	298	66	13 20
T. G. Lamb.....	231	50	10 00
James Brooks.....	236	50	10 00
James Brooks.....	237	50	10 00
James Brooks.....	238	50	10 00
James Brooks.....	239	50	10 00
James Brooks.....	240	50	10 00
James Brooks.....	241	50	10 00
James Brooks.....	242	50	10 00
James Brooks.....	243	50	10 00
James Brooks.....	244	50	10 00
James Brooks.....	245	50	10 00
James Brooks.....	246	25	5 00
S. Heydenfeldt, Jr.....	271	50	10 00
S. Heydenfeldt, Jr.....	272	50	10 00
H. K. Drake, Trustee.....	273	100	20 00
H. K. Drake, Trustee.....	274	100	20 00
H. K. Drake, Trustee.....	275	100	20 00
H. K. Drake, Trustee.....	276	100	20 00
H. K. Drake, Trustee.....	277	100	20 00
H. K. Drake, Trustee.....	278	100	20 00
H. K. Drake, Trustee.....	279	100	20 00
H. K. Drake, Trustee.....	280	100	20 00
H. K. Drake, Trustee.....	281	100	20 00
H. K. Drake, Trustee.....	282	100	20 00
H. K. Drake, Trustee.....	283	100	20 00
H. K. Drake, Trustee.....	284	100	20 00
H. K. Drake, Trustee.....	285	100	20 00
H. K. Drake, Trustee.....	286	100	20 00
H. K. Drake, Trustee.....	287	100	20 00
H. K. Drake, Trustee.....	288	100	20 00
H. K. Drake, Trustee.....	289	100	20 00
H. K. Drake, Trustee.....	290	100	20 00
H. K. Drake, Trustee.....	291	100	20 00
H. K. Drake, Trustee.....	292	100	20 00
H. K. Drake, Trustee.....	293	100	20 00
H. K. Drake, Trustee.....	294	100	20 00
H. K. Drake, Trustee.....	295	100	20 00
H. K. Drake, Trustee.....	296	100	20 00
H. K. Drake, Trustee.....	297	500	100 00
Thomas P. Hawley.....	302	250	50 00
David S. Terry.....	303	200	40 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of May 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company, 614 Merchant Street, room 26, San Francisco, California, on Tuesday the 11th day of July, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINSON, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, Cal
ifornia. 25v22-3w

Nevada Land and Mining Company.—Lo-

cation of works, Steptoe, Johnson & Latham, Ant-
elope and Clifton Districts, Elko County, State of Ne-
vada.

Notice.—There are delinquent upon the following
described stock, on account of assessment (No. 7) levied
on the 8th day of May, 1871, the several amounts set
opposite the names of the respective shareholders, as
follows:

Names.	No. Certificate.	No. Shares.	Am't.
Henry B. Miller.....	unissued.	2,000	\$80 00
H. O. Kibbe.....	unissued.	1,000	40 00
Washington Meeks.....	unissued.	2,000	80 00

And in accordance with law and an order of the Board of Trustees, made on the 8th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 3d day of July, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Fran-
cisco, California. 23v22-4w

Pinto Mining Company, Location of Works.

Silverado, Pinto Mining District, White Pine County,
Nevada.

Notice.—There are delinquent upon the following
described stock, on account of assessment levied May
24th, 1871, the several amounts set opposite the names
of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacob.....	1	50	\$ 7 50
Leopold Jacob.....	from 2 to 32	50	133 75
A H Ward, Jr.....	111	805	100 62
Henry G Langley.....	171	1 610	201 25
Elliot J Moore.....	178	1,610	201 25
Robert E Johnson.....	213	313	39 13
Erasmus Olsen.....	212	10,000	1,250 00
D B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-
room of Maurice Dore & Co., No. 327 Montgomery
room of Maurice Dore & Co., on the 17th day of July, 1871,
at the hour of 12 o'clock M. of said day, to pay said de-
linquent assessment thereon, together with costs of ad-
vertising and expenses of sale.

D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery

Machinists and Foundries.

FULTON
Foundry and Iron Works.HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-qy

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-
class establishments, manufactured by us at the lowest
prices, and of the best quality.Particular attention paid to Jobbing Work and
Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELE-
BRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20q

PACIFIC

Rolling Mill Company,
SAN FRANCISCO, CAL.Established for the Manufacture of
RAILROAD AND OTHER IRON
AND

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Con-
necting Rods, Car and Locomotive Axles
and Frames.

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL
COMPANY Post Office, San Francisco, Cal., will receive
prompt attention

The highest price paid for Scrap Iron 9v143m

J. O. CALDWELL, REESE LLEWELLYN,
President, Superintendent.

COLUMBIA

Co-operative Foundry Company,
(INCORPORATED MARCH 16, 1871),
133 and 135 Beal Street, between Mission and Howard,
SAN FRANCISCO.Manufacturers of
MACHINERY AND CASTINGS
of every description.Particular attention given to Castings for Mills and
House Fronts. All Work done at the Lowest Price and
Shortest Notice. 23v22-3mCAST IRON PIPE,
FOR WATER AND GAS.PIPE of all sizes, of a very superior quality, is now
being made at the

PACIFIC IRON WORKS,

In this city, under the Patents of Farrar & Whiting.
23v22-3m GODDARD & CO.

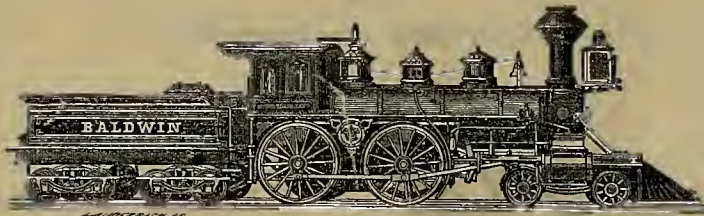
McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco
2v21-1f

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES.

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WM. P. HENSZLEY,
GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH.
WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal. apl-cow26t

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors,
Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylv-
ania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced
into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

BOILERS

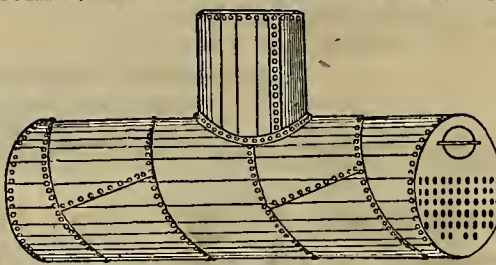
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



22v22-3m

Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

VULCAN IRON WORKS,

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS & BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

GENERAL MACHINERY

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m



NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14q

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting,
Draining, Grading, Submarine Blasting, Deep Bor-
ing for testing the value of Mines, and Boring Artesian
Wells. Office, Room 16, No. 315 CALIFORNIA STREET,
San Francisco. 25v20-3m

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF Brass, Composition, Zinc, and Babbitt Meta
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Boils and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.
J. H. WREED V. KINGWELLTHE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

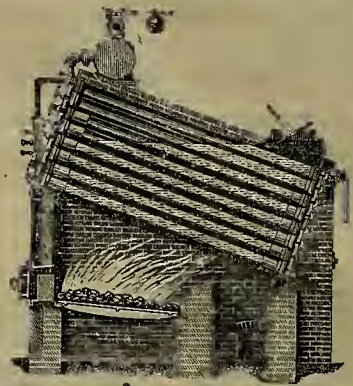
Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.WM. H. TAYLOR.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary. 24v17-qy

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 8v19-qyTHOMPSON BROTHERS,
EUREKA FOUNDRY,and 131 Beale street, between Mission and Howard
San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

OVER 300 IN USE.

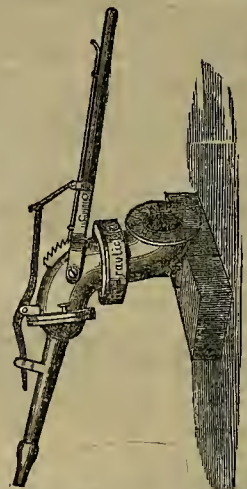
BEST IN THE MARKET.

Engines, Pumps, Etc., Manufactured and
on Hand.

For pamphlets and testimonials address

ROOT STEAM ENGINE CO.,
Twenty-eighth Street, corner Second Avenue,
20v22-cow-26t NEW YORK.

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE
is the Best Hydraulic Machine in Use.MACHINES MANUFACTURED TO ORDER,
to throw from one to an eight-inch stream.

ALL KINDS OF MACHINES

Built to order, and Repairing done promptly.

NOZZLES TURNED OUT AND FITTED FOR ALL MACHINES AT

H. FISHER'S

Sacramento Street Machine Shop,

HYDRAULIC MINERS, TAKE NOTICE.

The notice published by R. R. and J. Craig, that they
have suits pending in the United States District Court,
which involves the working principle of my HY-
DRAULIC CHIEF, is false.I caution all miners to beware of the efforts of the
said Craigs to intimidate my patrons or extort money
from them by false representations.I have a full patent for my Hydraulic Chief, granted
December 20th, 1870. No. of patent, 110,222.24v22-1m F. H. FISHER,
Nevada City, Cal.

The Stetefeldt Furnace.

For information of any description respecting this
process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Duncan's Building, Room 1, California Street,
4v21-1y San Francisco.Mr. L. L. LEWIS, OF MONITOR, CAL., is not my
Agent, nor has he authority to negotiate anywhere for
the FURNACES, MACHINES AND PROCESSES OF
WHEPLEY & STORER, nor for the STETEFELDT
FURNACE in ALPINE or MONO Counties.

JACOB J. STORER,

24v22-3m Boston, Mass.

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,
Are prepared to make SHEET IRON AND ASPHALTUM
PIPE, of any size and for any pressure, and contract to
lay the same where wanted, guaranteeing a perfect
working pipe with the least amount of material.All kinds of CAR WHEELS, AXLES and RAILROAD
WORK made to order. Standard sizes of Wheels con-
stantly on hand. Wheels bored and pressed on, Axles
turned, etc., at Reasonable Rates.

24v22-3m JOSEPH MOORE, Superintendent.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dnabar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14v1 SACRAMENTO CITY

Machinery.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchaser shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

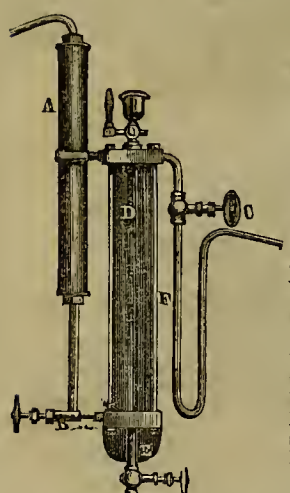
by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,

San Francisco.

GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. C is a valve, connecting with pipe which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C.

TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's.,

Celebrated Dutch Anchor Brand Bolt- ing Cloths; Smit Machines; Press Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired, rebuilt and balanced.

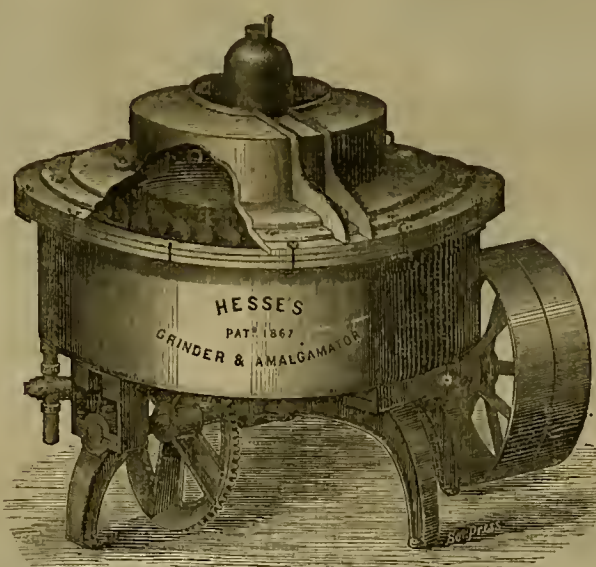
MANUFACTURERS OF

French Burr Mill Stones, Portable Mills of all sizes, from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for grinding Quartz.

2v22-1yins

41 First st., San Francisco.

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

LORD & PETERS,

304 Battery street, San Francisco, Cal.

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

OIFFARD'S

INJECTORS.

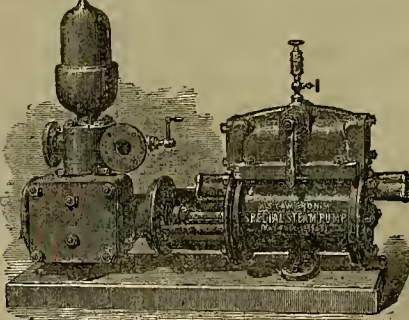
BARTOL'S

STEAM TRAP.

Surface Condensers.

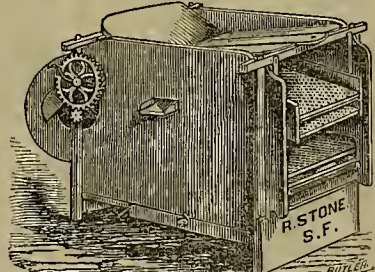
DAVID STODDART,

114 BEALE STREET, S. F.



THE PATENT

Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct quantities of wheat if desired.

For further information apply to R. STONE,

25v22-3m

422 Battery street, San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely dissolved.

Millmen are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

AHEAD OF THE WORLD.

THE NEW TREADLE POWER,

Just Invented, and used exclusively on the HOWE SEWING MACHINE.

With it any lady, however delicate her health may be, can run the Machine from morning until night with perfect impunity.

The Howe is the Best,

Consequently the most Popular Machine in use. The Daily manufacture is over 500 Machines.

H. A. DEMING, Agent,

apl5-3m

No. 113 Kearny street, San Francisco.



GEO. T. PRACY'S

MACHINE WORKS

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENOINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill- ing Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CRUCKS OF ALL KINDS.

MANUFACTURED OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES.

STEAM JET PUMP.

Blacklee & Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT,

Southeast cor. Tenth & K Streets, Sacramento City Cal.

AGENTS:—CHAS. F. BRACK, 117 California st., San Francisco; KEEF & BARGON, 81 Jackson St. Can be seen at McAFFEE, SPILERS & Co's. Boiler Works, S. F. 21v21-tf

JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c., Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.

24v2L-3m

HIBBERD, SANBORN & CO.



STAIR BUILDERS.

South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly at tended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

21v22-6m.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m

JOHN F. LOHSE, Secretary.



STURTEVANTS

PRESSURE

BLOWER,

Are for sale by

Berry & Place,

112 California st.,

San Francisco,

who have the different sizes always in

stores.

4v22

Heat and Life.....	370	Mixed Dishes.....	333	Sewage, Phosphate Pro-	370	Winces Artificially Col-	307	le Oas, J. W. Stow.....	262	Tire for Traction Engi-	57
Hell Gate.....	338	Modern Languages.....	311	cess.....	370	ored, Detecting.....	307	Manufacture of Pneumat-	390	ing for Traction Engi-	57
Hemp.....	338	Montana Agriculture.....	326	Sewing Machines, 68, 30	370	Wire Rope, Largest.....	368	ic Gas, B. Bloomfield.....	390	ing for Traction Engi-	57
Hemp, Gammar.....	338	Molding Machine, Ocar's	214	Shedfield Scientific Seaboi	156	Wool, 100 lbs.....	105	Jenkins.....	23	Tool for Carriage Makers,	182
High Heeled Shoes.....	26	Mt. Genis Tunnel.....	87	Shin Building, Iron.....	290	Woolfman.....	248	Medical Compound, S. W.	182	G. Atkinson.....	182
High Mine in a Mine.....	87	Mt. Kaimier Firing.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Helm.....	198	Trade Mark, G. F. Furber	198
Horse Valley Road.....	87	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Horse-Harnessing Machine	87	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Horse Shoe Rolls.....	87	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Horticultural Society.....	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
Hose-Sprinkler, Ander-	214	Mt. Kaimier of the Alps.....	87	Ships, Co. nospite.....	402	Woman's Rights.....	182	Hall and T. Locher.....	37	Treating Fruit Trees, S. J.	198
H											

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price \$2.50 coin, or \$3 currency, postage free.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work unequaled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ores and minerals, which can be found elsewhere in print. It abounds throughout with facts and illustrations rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postpaid.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

For single copies of the above works, or for the trade,
address
DEWEY & CO.,
Publishers and Patent Agents, Scientific Press Office
San Francisco.

Sam F. Hunsicker

PACIFIC RURAL PRESS

THE PACIFIC RURAL PRESS is a fine, large paper, and promises great things as an agricultural paper—the finest in the State. Success attend it.—*Pajaronian*.

It is the duty of the farmers to sustain it, and try and make it a success, which we believe will be done. The price per annum is \$4.—*Yolo Mail*.

Its selection cover a great variety of subjects and contain the latest discoveries and suggestions in the field which it occupies.—*Stockton Independent*.

One new feature of the Press is a weekly leather market report, which will be found to be of interest to all leather dealers, harness makers and shoe and boot makers.—*Independent*.

THE PACIFIC RURAL PRESS is one of the Largest, best Illustrated and most Original and Entertaining Agricultural Journals in America, and has no rival on this side of the Continent. Its Circulation is Rapidly Increasing, and it is Very Popular with its Patrons.



It is crammed full of Hints and Information for the Progressive People of the Pacific States, which are more Profitable and vitally Interesting to our Husbandmen and Industrial Classes than any which can be obtained elsewhere. Subscribe at once for your own Pleasure and Profit.

PACIFIC RURAL PRESS.—It is a sixteen-page sheet, and presents a very beautiful appearance. Such a paper has been in demand on this coast for some time, and we judge from the amount of agricultural information which it contains that it fills the bill. We notice that I. N. Hoag, of Yolo county, has been selected as one of the contributors to its pages. Every farmer should subscribe for it.—*Yolo Mail*.

NEW AGRICULTURAL PAPER.—THE PACIFIC RURAL PRESS.—It is truly a model agricultural paper broad and comprehensive in its scope, ably edited, and will mark a new and better era in the history of agriculture on this coast. It cannot be supplanted by any agricultural paper published in the East, for the editors are men familiar with the soils and climatic peculiarities of this coast.—*San Jose Mercury*.

THE PACIFIC RURAL PRESS.—As its name indicates it is devoted to agriculture in all its branches, and the sample number is filled with matter invaluable to farmers, gardeners, and stock raisers. No man taking any interest in farming, gardening or stock raising ought to be without the PACIFIC RURAL PRESS. It is well worth the subscription price—\$4 per year.—*R. R. Reveille*.

"PACIFIC RURAL PRESS".—The PACIFIC RURAL PRESS of Saturday, which has just come to hand, contains a great amount of matter which will be of interest to farmers, manufacturers and mechanics. The subscription price—\$4 per annum—is certainly a trifling sum for this model paper—devoted as it is to the best interests of the farmer on the Pacific Coast. We predict success to the Press.—*Independent*.

TAKE THE NEW HOME PAPER!



Will be issued weekly on Saturdays, commencing Jan. 7th, 1871, containing sixteen pages devoted to

Agriculture, Horticulture, Stock Raising, Domestic Economy, Home Manufactures, Mechanics, Industries, etc.

With an able and ample corps of editors, special contributors and correspondents, we publish a liberal variety of articles, entertaining as well as instructive, which not only make the **RURAL PRESS** an able assistant to its patrons, but an attractive and welcome visitor to every reader in every intelligent

Home Circle;

for few there are—male or female—who will not find pleasure and enjoyment in the study of progressive farming and gardening.

Honest, intelligent and correct information is faithfully given, in behalf of, and urging

An improved Cultivation of the Soil;
A greater Diversity of Products;
Better Breeds of Stock;
Better Varieties of Fruits;
The Culture of New Products;
Creation of New Home Industries;
Adoption of Improved Implements;
Higher and Happier Aims in Life, etc.

Valuable and Timely Hints,

are given weekly to lessen the labors of the farm, the household and the shop, and add to the health, the wealth and the wisdom of every patron of industry.

How to Farm in the Pacific States.

As the conditions and circumstances of soil and climate and seasons on this coast are so peculiar that many of the approved methods of eastern agriculture are not at all applicable on our side of the Continent,—special attention will be given to considering the need, extent and character of the modifications necessary. This will alone render the paper of great practical value to our home readers and more essential to them than all the distant publications obtainable, without such auxiliary and modifying instructions.

The following are among the specialties upon which the **PACIFIC RURAL PRESS** will treat:

Silk, Cotton and Sugar Beet Culture; Nurseries, Orchards, Tropical and small Fruits; Steam-plowing, seeding and harvesting for large tracts; Reclamation of swamp and unproductive lands; Hill and mountain farming; Grape growing; Fig, Raisin and Fruit drying; Irrigation; Lessons and Lectures on the chemistry of growing crops and on fertilizing lands; Practical Farming vs. Speculation; Taxation of unimproved lands; Railroads and improved transportation for crops and the better class of immigrants; Farmer's Clubs, lectures and associations; Co-operation in farming, mechanism, manufacturing and other industries; Government lands for settlers whether sold by R. R. operators or the U. S.; Reliable wholesale and retail market reports; Brief notices of Mechanical and Scientific Progress; Instructions for regular and farmer mechanics; Household Reading; Health and domestic receipts; a sprinkling of sprightly reading; Life thoughts; Poetry, condensed stories, items of news, etc., will be given.

No editorials or selections of unchaste or doubtful influence; or lottery, quack or other disreputable advertisements, will be admitted into its columns.

SUBSCRIPTION IN ADVANCE.

One copy one year.....\$4 00
One copy six months.....2 50
One copy three months.....1 25
Single copies.....10

CLUB RATES.

Ten copies or more, first year, each.....\$3 00
[A free copy or premium sent to getter up of club.]

A select variety of advertisements only will be inserted. Circulated widely among the most thrifty of our population, the **P. R. P.** will be the cheapest and most effective medium for a large range of first class advertisements in the Pacific States.

Correspondence is respectfully solicited from every worthy source.

LOCAL CANVASSERS WANTED for every town, city and county. Special inducements offered. Parties desiring to get up clubs or act as agents, will be furnished sample copies and prospectus free.

DEWEY & Co.,

Publishers Patent Agents and Engravers, No. 414 Clay st., San Francisco. Nov. 21, 1870.

A CARD.

DECEMBER, 1870.

Having seen the prospectus of the **PACIFIC RURAL PRESS**, and believing there is great need in our comparatively new agricultural districts of such a journal as therein proposed, the undersigned do not hesitate to state that from the standing reputation and success of its publishers, (Messrs. Dewey & Co., proprietors of the **SCIENTIFIC PRESS**), we believe the new journal will be worthy of universal trial by our agricultural and rural population, and that its publication will be fruitful of much usefulness to its subscribers and in forwarding the development of our natural wealth and prolific resources.

CHAS. F. REED, President State Agricultural Society, Dr. J. S. CURTIS, Yolo Co.
WM. H. PARKS, late Pres. North Dist. Ag. Society.
ROBT BECK, Sec'y Cal. State Agricultural Society.
C. T. WHEELER, Member State Board of Agriculture.
ROBT HAMILTON, member St. Board of Agriculture.
E. MILLS, Member State Board of Agriculture.
I. N. HOAG, late Sec'y State Agricultural Society.
O. C. WHEELER, formerly Sec. State Agricultural Soc.
G. N. SWEZY, Pres. North Dist. Ag. Society of Cal.
J. E. DOVE, Pres. San Joaquin Agricultural Society.
ROBT WATT, State Controller.
JOHN BIDWELL, formerly Pres. Upper-Sacramento Ag. Society.
EZRA S. CARR, Prof. of Agriculture and Ag. Chem., Cal. State University.
E. J. HOLDEN, formerly Pres. San Joaquin Ag. Society.
HARMEN BAY, Pres. Upper-Sacramento Ag. Society.
E. HALLET, Secy. Upper Sac. Ag. Society.
R. B. SWAIN, Pres. Chamber of Commerce, S. F.
H. N. BOLANDER, Pres. Bay Dist. Hort'l Society.
A. S. HALLIDIE, Mechanics' Institute of the city of S. F.
HENRY KIMBALL, Pres. Odd Fellows Library, As'n S. F.

SCIENTIFIC AND RURAL PRESS.—L. P. McCarty, traveling and corresponding agent for the "Scientific" and "Rural Press," papers published by Dewey & Co., San Francisco, was in town this week soliciting subscriptions. Miners and farmers can get more information from these journals in relation to their special vocations than from any other publications now being issued in the State. The "Rural" was commenced with the year and promises to become a very popular agricultural paper, having already gained an extensive circulation.—[Sonora Democrat.]

RURAL PRESS.—L. P. McCarty, traveling agent for the San Francisco "Rural Press," is now in this town soliciting subscribers and collecting statistics and other information for the paper. The "Rural" is a large, well-conducted paper, containing a great variety of important information to the farmer, gardener, mechanic, or merchant, and we are pleased to see that it is attaining a large circulation throughout the State.—[San Joaquin Argus, Snelling.]

The "Scientific Press," of San Francisco, is a journal that is in full sympathy and action with the progress of the age; while it notices all the late scientific discoveries and improvements, it does not neglect "the weightier matters of the law," the wonderful agricultural, mechanical, mining, and railroad progress at this time in our great and enterprising Pacific States.—[N. Y. World.]

NEW PUBLICATION.—The "Pacific Rural Press" is devoted to the agricultural interests of the State, and from the extensive and reliable means of acquiring information possessed by Dewey & Co., through their correspondents, we have no doubt this paper will be, as its first number promises, a desirable acquisition to the farming public.—[Lower Lake Bulletin.]

ALKALINE SOILS.—We have not seen the last number of the "PACIFIC RURAL PRESS" but learn from the Sacramento "Union" that that journal has a very instructive article on the various methods of relieving alkaline soils from the superabundance of salts which they contain.—[Daily Enterprise, Virginia, Nev.]

PACIFIC RURAL PRESS.—The paper will be quarto in form, and contain in each issue sixty-four columns of matter, and be devoted principally to agricultural and horticultural matters. The subscription is \$4 per annum; clubs often \$3. Address Dewey & Co., 414 Clay street, San Francisco.—[Placer Herald.]

NEW PAPER.—The "Pacific Rural," published by Dewey & Co., in San Francisco, is devoted to agriculture, and fills a void long felt in its department of literature on the Pacific Coast. We wish it success. It should be on the table of every farmer and mechanic in California.—

THE **RURAL** is an excellent paper for the farmers and orchardists of California, and of this fact they will be convinced by an examination of the paper.—[Grass Valley Union.]

SCIENTIFIC PRESS.—This excellent journal, published at San Francisco, entered upon its 22d volume last Saturday. It should be well supported by the miners and mechanics of the State.—[Amador Dispatch]

What our Neighbors say of the Pacific Rural Press.

It is a beautiful and valuable sheet.—[San Jose Ind.]
The first No. evinces marked editorial ability. Fills up a vacancy that has been felt in our agricultural department. With its publishers there is no such word as fail.—[Mt. Messenger.]

We believe every subscriber will be satisfied with the investment of the price of subscription, \$4.—[Sonora Dem.]
It is a work which no farmer should be without.—[Frederick Union.]

An admirable specimen both as to execution and contents. Contains a large amount and great variety of attractive reading matter and several excellent illustrations.—[Stockton Daily Ind.]

A large 16-page weekly. The **Rural Press** will be to the Pacific coast what Moore's **Rural New Yorker** is to the Middle and Northern States.—[Encinal Alameda.]

Any intelligent farmer in the State will consider his money well invested by subscribing for the new paper. "Honest, intelligent and correct information will be faithfully given in behalf of and urging an improved cultivation of the soil, a greater diversity of products, better breeds of stock, better varieties of fruits, the culture of new products, the creation of new home industries, the adoption of improved implements, and happier and higher aims in life."—[Euclinal.]

They can, if they will, make it a creditable work. [We will that.] It opens well.

Excellent paper and type—and a first-class agricultural journal. Its merits entitle it to a large circulation, which we apprehend it will speedily obtain.—[Vallejo Recorder.]

We announce with pleasure the new paper by Dewey & Co., proprietors of that peerless paper, the **Scientific Press**.—[Arizona Miner.]

We think the rural people of the Pacific Coast will have an organ second to none in the country.—[Idaho Statesman.]

Just the kind needed on this coast, and merits an extended circulation.—[Red Bluff Independent.]

PACIFIC RURAL PRESS, published by A. T. Dewey, W. B. Lwer, G. H. Strong and J. L. Boone. The paper is a success, and will supply a want long needed.

It has already attained to a large circulation. Is running over with entertaining and instructive reading matter, and embellished with numerous engravings. The heading is beautiful and appropriate.—[Pajaronian.]

We cordially welcome it. The publishers, believing that the agricultural enterprises of this coast were sufficient to support a publication wholly devoted to its interests, determined to confine the **Scientific Press** to mining and mechanical arts, and have therefore started the **Pacific Rural Press**.

If the first number is to be taken as an earnest of what will follow, each week, we can advise you to all interested in agricultural pursuits. subscribe.—[Vallejo Chronicle.]

Dewey & Co., publishers, have unusual facilities for publishing a superior paper for the farming community, and they are men of energy to do it.—[Evangel, S. F.]

Such a paper has been in demand on this coast for some time, and we judge from the amount of agricultural information which it contains, that it fills the bill.

We notice that I. N. Hoag, of Yolo county, has been selected as one of the contributors to its pages.
It is the duty of the farmers to sustain it, and try and make it a success, which we believe will be done.—[Yolo Mail.]

We have received this new home and farm journal, and like it well.

The publishers seem determined to make a popular, first-class rural home journal, well filled with interesting and elevating reading, with no unchasteness in either reading or advertising matter.

Having the countenance and encouragement of the prominent and most active agriculturists in California, and long experience in the publication of the "Scientific Press"—which will be continued entirely independent of the "Rural Press"—the public have ample assurance that the new effort to establish a first-class farm journal on this coast will prove a success.

Dewey & Co., San Francisco, are the publishers, and the price is low—\$4 a year; or to a club of 10 or more, \$3. Sample copies sent on receipt of a postage stamp.—[Alpine Miner.]

The "Rural Press" will supply a want long felt in California, and we predict that it will acquire a large circulation among our agricultural population.

Unlike many so-called "agricultural" papers, it will not be exclusively devoted to horse-racing, prize-fighting, yachting, etc., but will be a respectable family journal.—[Democrat, Downieville.]

We judge that it will meet the requirements of agriculturists. As publishers of the "Scientific Press," the name of Dewey & Co. is a guarantee that this new publication will meet with favor.—[Alpine Chronicle.]

The farmer, horticulturist, the home circle and the housewife will find in it just the articles that will be pleasing and profitable to them.—[Christian Advocate, S. F.]

It will represent the agricultural interests of California and the Pacific Slope. With so much ability as to command a wide circulation and influence.—[Helena, (M. T.) Goz.]

Will be found worthy the patronage of the people of this State.—[Argus, Snelling.]

We heartily welcome the new publication. The interests of our own county are about equally divided between mining and farming.

Not a farmer in it, however well informed, but may learn something of value pertaining to his business, from an ably conducted paper, specially devoted to the consideration of the peculiar conditions of soil, climate and seasons of the Pacific Coast.

From the well known ability and energy of the publishers, we doubt not that the "Rural Press" will fulfill all these conditions.—[Inyo Independent.]

FROM A CORRESPONDENT.—I have seen your "Pacific Rural," and I never tire of looking at and studying its "head and front." It is a *taking* picture, and will induce many to take the paper. The contents are No. 1, also. W. H. M.

Send in your subscriptions at once to Dewey & Co., publishers, No. 414 Clay street, San Francisco.



OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the **SCIENTIFIC PRESS**. We transact every branch of Patent business, and obtain Patents in all civilized countries. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most reliable advice as to the patentability of new inventions. **ADVISE AND CIRCULARS FREE.** Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior. ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in color, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

SCIENTIFIC PRESS.

FOR 1871.

WILL BE SPECIALLY DEVOTED TO

Mining, Mechanic Arts, Inventions, and Home Industries of the Pacific States.

PRINTED ON NEW TYPE.

AND ITS

READING COLUMNS INCREASED,

AND

Otherwise Improved in Value.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement.

CLUBS AT \$3 PER ANNUM

For each name, will be received when ten or more persons co-operate in sending in their cash in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the **PRESS** until they read it. Use your copy of the paper to induce others to subscribe, (if you like it yourself), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & Co., Publishers.

ENGRAVING ON WOOD

Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & Co.,

No. 414 Clay street, S. F.

NEW AGRICULTURAL PAPER.—No. 5 of the "Pacific Rural Press" came to hand this week, fully sustaining its former issues, and "speaking great credit" for the proprietors who have fairly established the "best" agricultural paper on this coast. The editorials are written by an experienced hand, and can, therefore, be relied upon as correct. The subject matter each number contains is worth more than the price of subscription. We hail this advent in the agricultural field, and bespeak for the proprietors success in their enterprise, as the State and Coast has now a paper "fully up to the occasion," and one which cannot fail to become valuable and interesting. Price per year—\$4 00. We especially commend this new agricultural journal to our friends in Sierra Valley, not only as a repository of useful information, but also as a beautiful pictorial for their parlor tables.—[Mt. Messenger, Downieville.]

NEWSPAPERS.—The San Francisco "Scientific Press," a journal that has accomplished more for the miners of this coast than all the professors and mining sharps from New Mexico to Dakota, has completed its 21st volume, and promises to continue its good work of instructing miners, mill-men and others, and making known the mineral resources of the mining States and Territories. The "Press" has the best wishes of one Arizona "Miner," for long life and great prosperity. Its enterprising publishers, Dewey & Co., have just issued the first (sample) number of their new agricultural paper, "The Pacific Rural Press," which promises to be as useful to farmers, gardeners, etc., as their other "Press" has been to miners.—[Arizona Miner]

YES, GIVE IT A TRIAL. This new publication is the best agricultural paper on the Pacific Coast. Our farmers will find it a valuable companion. It is issued by the publishers of the **Scientific Press**.—[Santa Cruz Times.]

A Pacific States Illustrated Home Journal.

(OVER.)

Scientific Press
v.22

CALIFORNIA
STATE LIBRARY

Call No.

Copy No.

